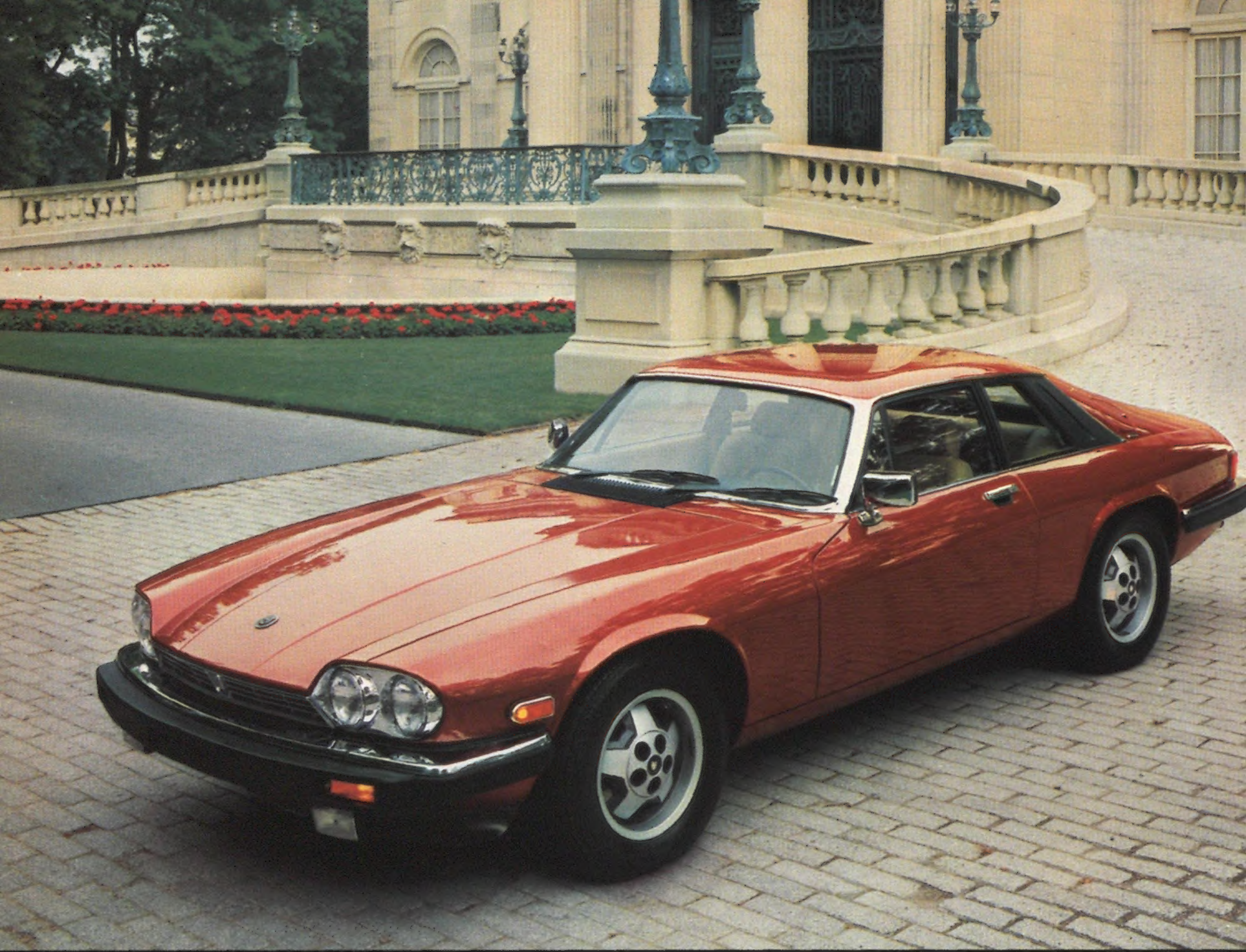
Smithsonian

February 1985

Smiling terra-cotta couple is one treasure in Italy's salute to Etruscans (p. 48)



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In the expert opinion of the editors of Road & Track, the S-type's only real competitor was the Porsche 928S. Why did they choose the Jaguar? Here's what they said:

"...we find the 12-cylinder XJ-S a marvelous road car that cossets its occupants in the finest leather upholstery, wood-trim paneling, plush carpeting and virtually every convenience option known to automobiles." Thank you, Road & Track. But may we gently remind you that those "options" aren't optional at all. They're standard equipment on every XJ-S and don't cost a penny more.

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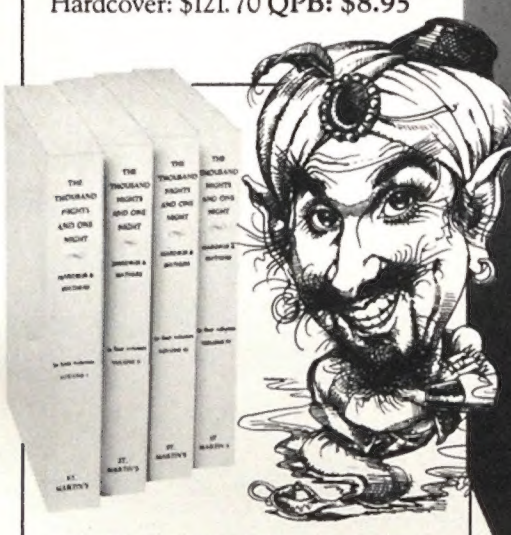

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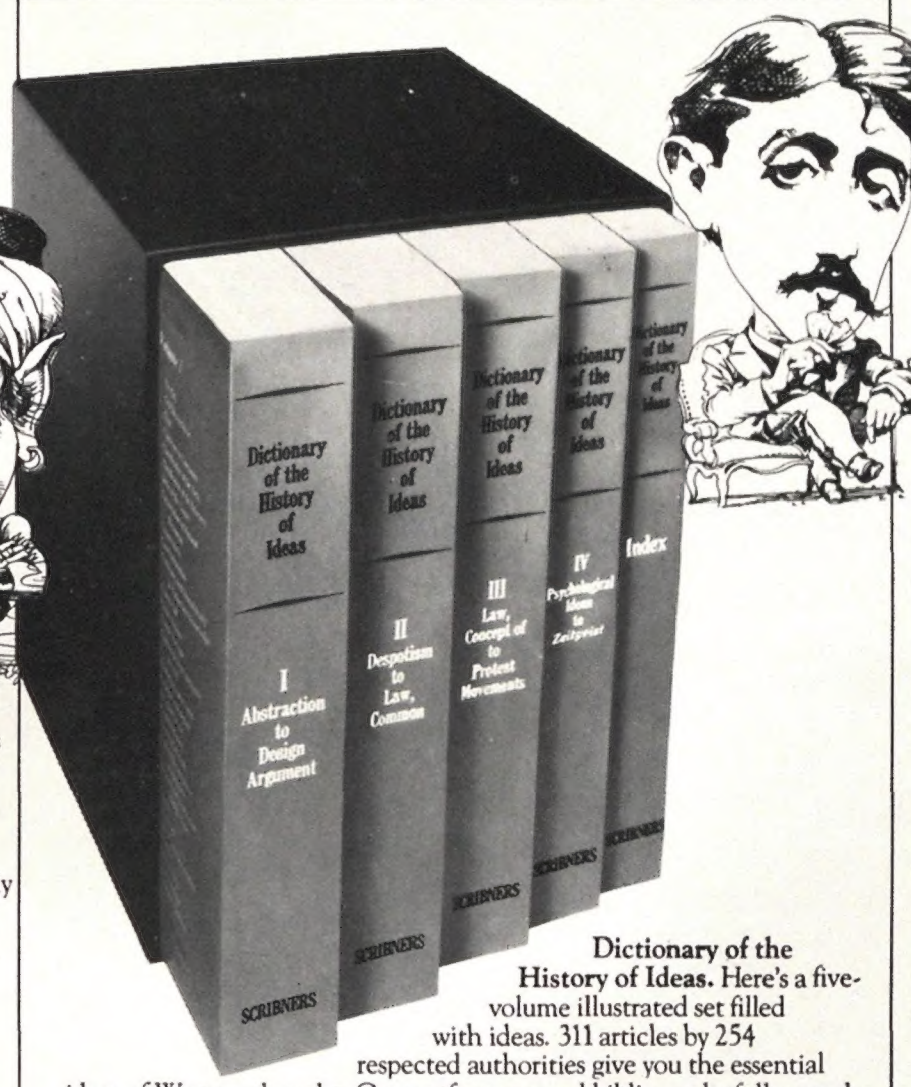
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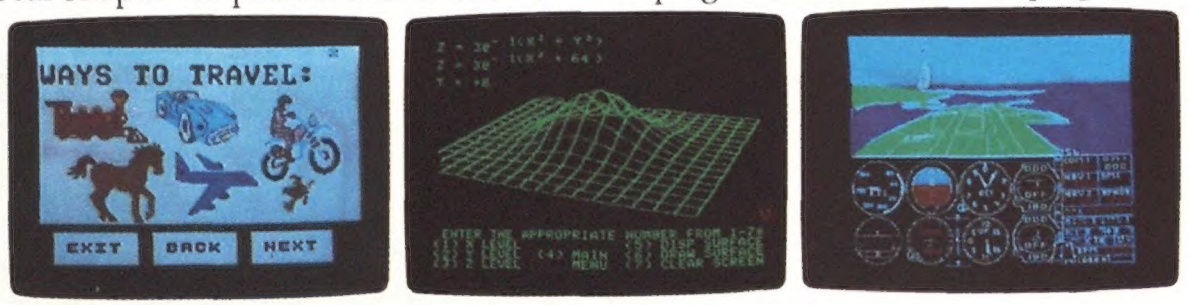

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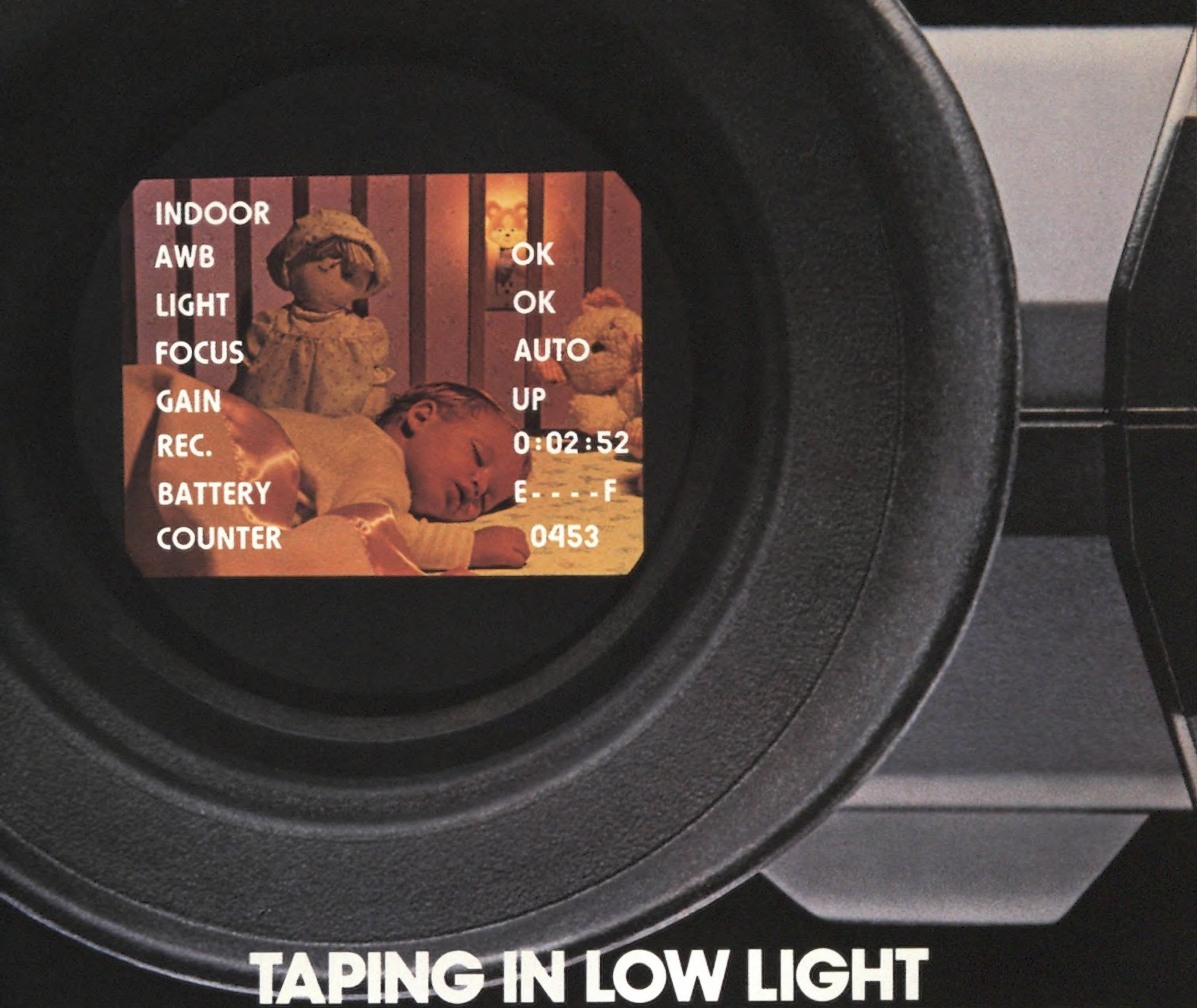

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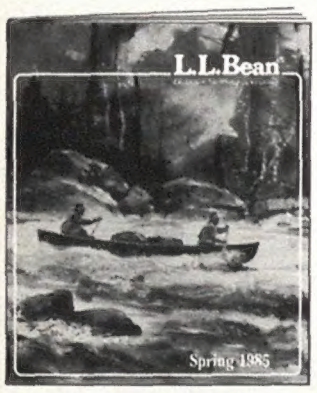

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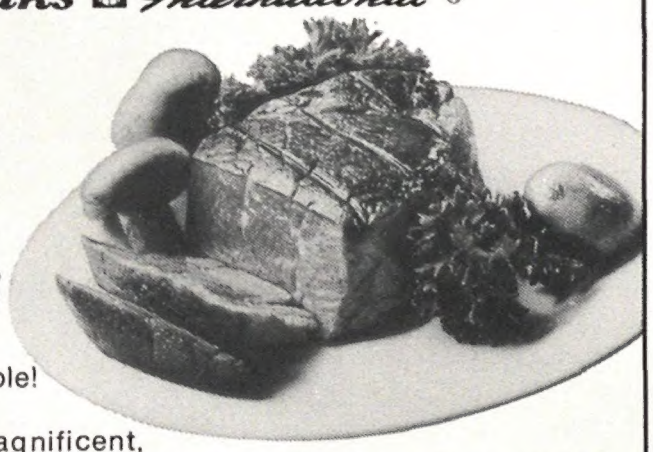

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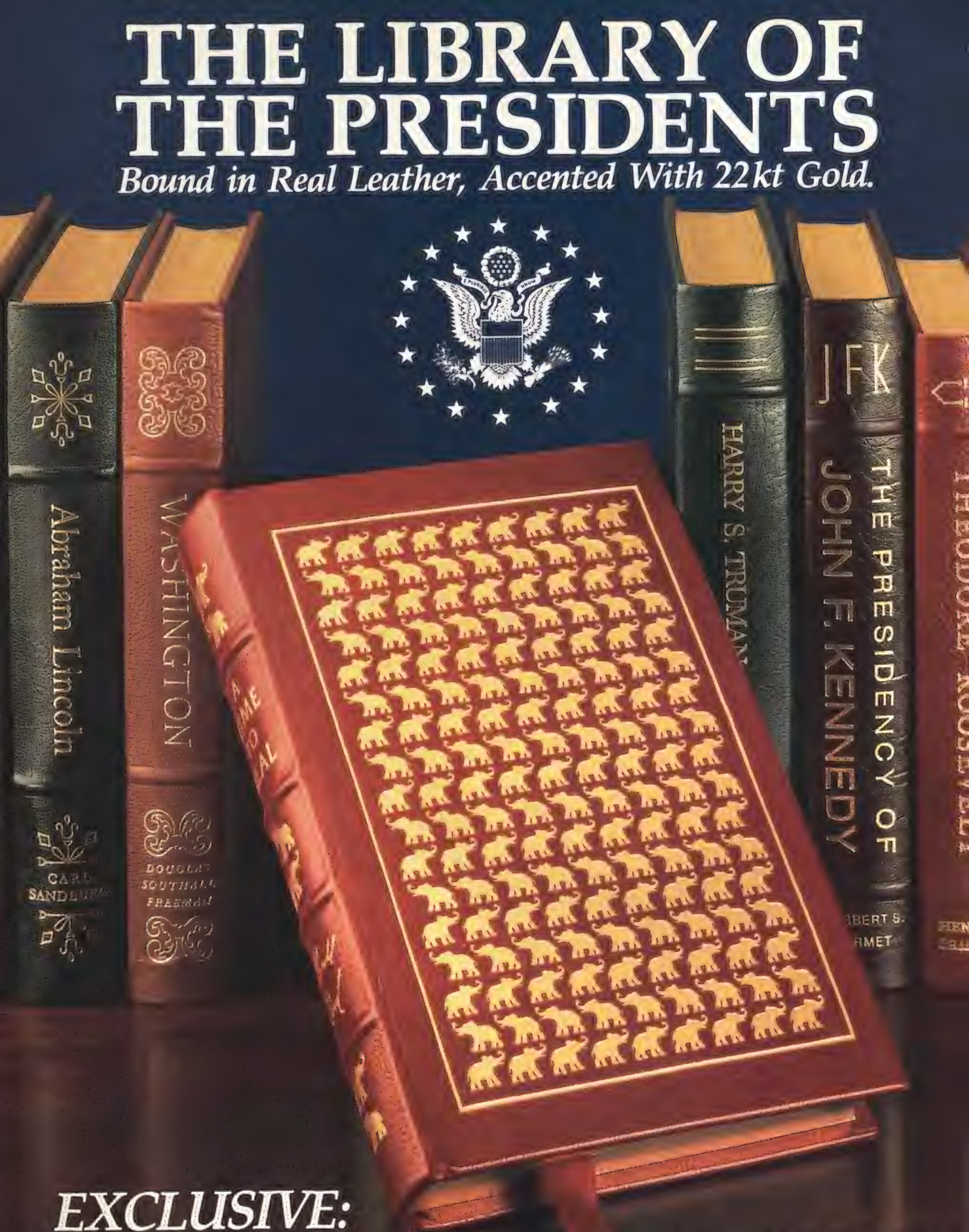

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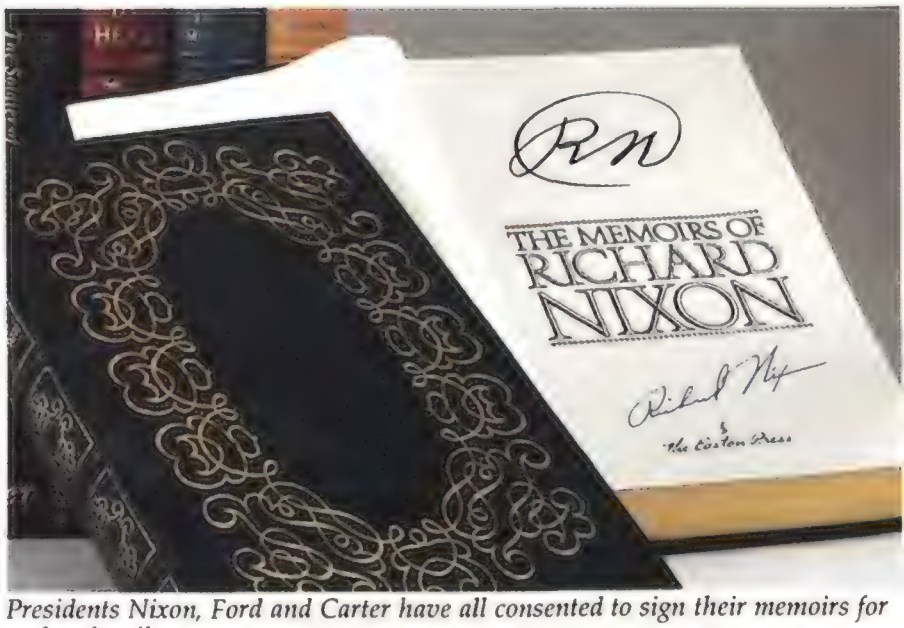

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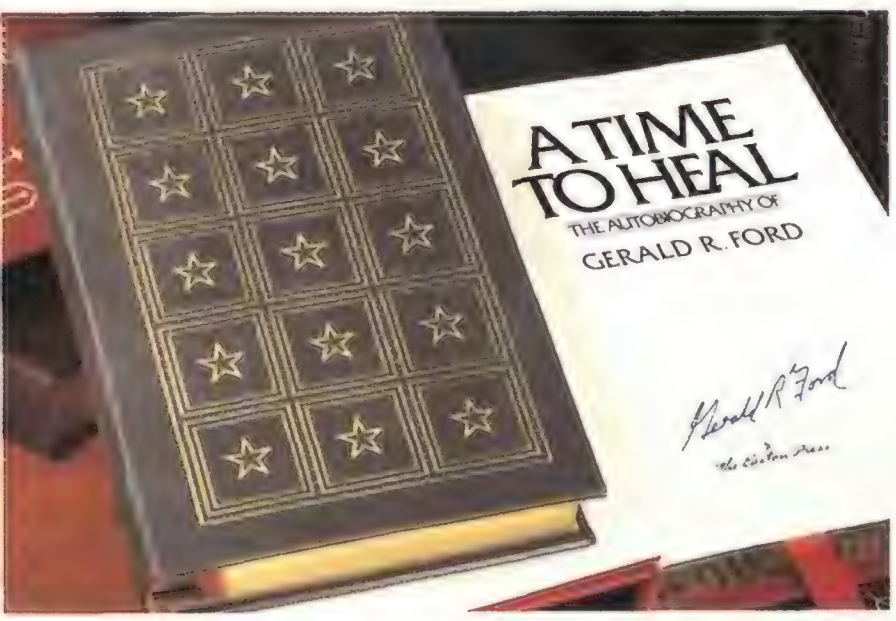

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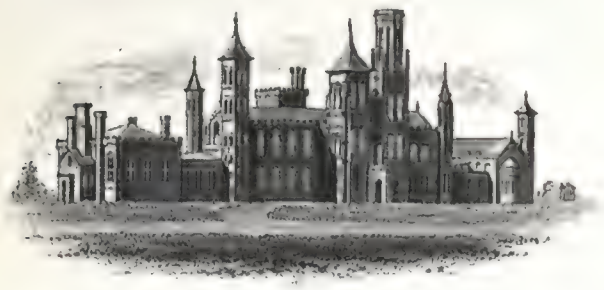


Today, good zoos—our own included—exist to try to save for posterity the 'wonderful and beautiful' species that are in danger

I'll confess to having been initially a little uneasy about the National Zoo. Not about the enjoyment that it and all good zoos provide human spectators, but about the confinement of the animals. My own early memories of zoos are of great cats pacing endlessly in cell-like cages, or of the obsessive routines of the higher primates, whose resemblance to ourselves makes observing them behind bars more painful. Granting the pleasure zoos afford to citizens of all ages, is there anything other than our own absolute dominance as a species to justify them?

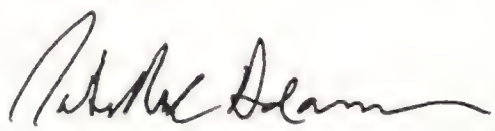
There is, I am now learning. At the Smithsonian a century or so ago, taxidermists were preparing skins and skeletons for museum display on an increasing scale, but with evident lack of naturalistic accuracy. Clearly, it was necessary "to study the natural forms of living animals in order that they might impart to the prepared specimens the grace and characteristics of life." Animals were gradually brought together for this purpose, numbering more than 200 by the late 1880s; the collection inevitably became a public attraction.

The spirit of conservation played a part from the outset. Public concern had been aroused over what then appeared to be the imminent extinction of the American bison, as well as other species. "It seemed to Secretary Langley," continued Frank Baker (on whose 1897 account of the first years of the zoo I have drawn), "that the Institution might do something to bring this matter clearly before the eyes of our legislators and of the public generally by exhibiting specimens of the most important animals likely to suffer extinction, placing them as nearly as possible in the conditions natural to them so that they might breed and thrive in captivity as in their native haunts."

That spirit is alive today. The new director of the National Zoo, Michael Robinson, vividly described it in a *Washington Post* interview as "a kind of modern Noah's Ark." Particularly as a result of the destruction of tropical habitats, of which I wrote in December, he observes that "we exist to try to save for posterity the wonderful and beautiful species that are in danger." Giant pandas provide a well-known example. Golden lion tamarins are another case in point. Not long ago these strikingly beautiful little monkeys were reduced to a handful. Now they are being successfully introduced into a new national park in Brazil as a result of breeding efforts by the National Zoo and other zoos in this country.

Conditions in our particular Ark are also being made steadily more tolerable through the replacement of relatively small cages by much larger ones, as well as through clever innovations that simulate the diversions of the natural environment. For most animals, Robinson goes on to point out, the natural environment is in any case an extremely limited and dangerous one. The myth of free-roaming animal movement just does not correspond with the real world of omnipresent predators and competitors.

Friends of the National Zoo (FONZ) has grown in a quarter-century from a group of 30 to more than 50,000 contributing members and some 600 volunteers. Even in an election year, the FONZ bumper stickers were the most numerous I saw last fall upon coming to Washington. Now I understand why.



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Letters to the Editor

Elf owls

Dear Sir: That nonchalant little fellow on your December cover made me feel I had been properly sized up and pegged.
Paul Crear
Severance, New York

Bedouin

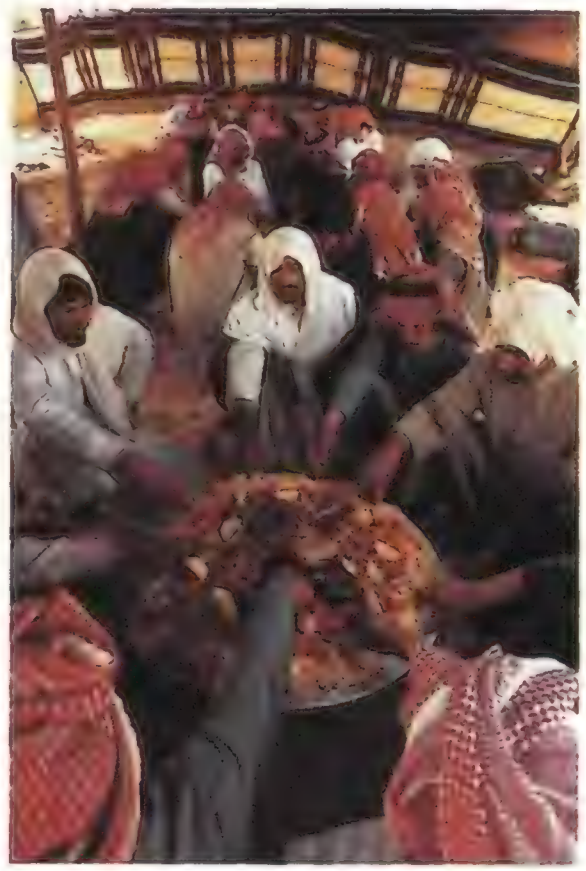
Dear Sir: Members of my family have lived in Saudi Arabia for years. The Arabs are a warm and charming people, with a wonderful sense of humor. I am glad that you have given your readers such a touching insight into a culture most of us will never have the opportunity to experience firsthand.
Elizabeth Dunlap Bartle
Barrington, New Jersey

Dear Sir: Your statement that Ramadan occurs in early summer is not totally correct. Ramadan can occur then, or at any other time of the year, because Islam is based on an uncorrected lunar calendar, which changes from year to year. Ramadan is always the ninth month—but falls at different times in different years.
Ronald Pleasants
New York City

Dear Sir: I worked in Saudi Arabia for two years as a rangeland management consultant, and based on my experiences there I agree with Wayne Eastep that the opportunity for a Westerner to live with the Bedouin should be cherished and shared. His article made that very clear.

However, the photograph of a meal of *kipsa* is clearly reversed. Arabs eat with their right hand only. The left is kept at a distance from any communal food, being reserved for personal hygiene. A picture showing them eating with the left hand is insulting.
P. Robert Alexander
Springfield, Virginia

The photograph of the Shammar eating kipsa *is reproduced correctly below. We regret that the photoengraver's error in reversing it was not caught before publication.* Ed.



Dear Sir: Wayne and Patti Eastep were accorded a remarkable personal experience by the people of the Āl Murrah and Shammar tribes. Mr. Eastep's writing and photographs will evoke many cherished memories among Americans who have had the privilege and pleasure of experiencing the stark beauty of the Arabian desert and the hospitality of its people.
William C. Overstreet
Santa Fe

Samuel Johnson

Dear Sir: Samuel Johnson was topped in the 19th century by Ambrose Bierce.

"Patriotism," wrote Bierce, "was described by Dr. Johnson as 'the last resort of a scoundrel.' With all due respect to an enlightened but inferior lexicographer I beg to submit that it is the first."
Robert Berger
New York City

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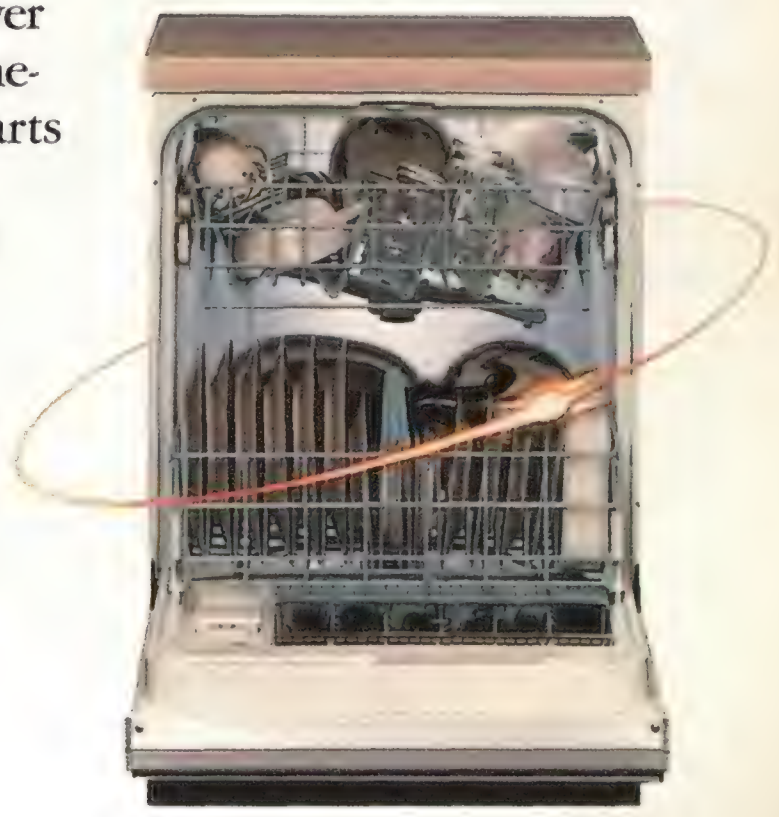

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Talking trees

Dear Sir: Trees talk to me—why not to each other? I planted a young tree in our courtyard, and as I walked past the wee one the first day I heard very clearly "Help!" I stopped in my tracks, looked around. No one. Walked over to the fence separating us from our neighbor to see whether someone was in trouble. No one.

This call for help went on for three days, until it dawned on me that the only time I heard it was when I passed the new little tree. I inspected it and could find nothing. My husband looked and found nothing. By now I was sure something was wrong, so cut away a little of the bark and found what the county agent called spider mites. They told us how to get rid of the nasty things as well, and I've heard nothing more from my tree.

Ina Von Doscher
Oroville, California

Schussing at Sun Valley

Dear Sir: How many of us had forgotten that there actually was a young, imaginative go-getter named Averell Harriman before he became today's beloved elder statesman?

Don Walsh
Hyannis, Massachusetts

Dear Sir: Peter Ognibene may know his ski resorts, but he does not know Omaha. This city, which sprawls over hills on the west bank of the Missouri River, is by no means "pancake-flat." Although the bluffs along the Mississippi were carved away in the last century, there are enough rises and elevations left to make it necessary for the city to put 1,000 sand barrels at strategic locations throughout Omaha in snowy, icy weather to help people navigate our hills.

Helene Magaret
Omaha

John L. Sullivan

Dear Sir: You described some of Richard Kyle Fox's promotions to increase circulation of his *National Police Gazette*, but neglected to mention the most daring of all: $10,000 to any group of men who could row across the Atlantic.

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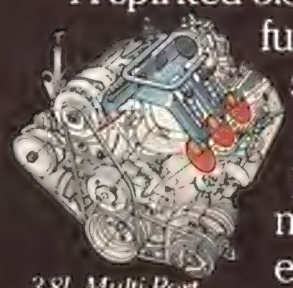

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cent immigrants from Norway but naturalized Americans. A rowboat was designed especially for them, which they christened *Fox* in honor of RKF. They set off on June 6, 1896, from Brooklyn, New York, and rowed for 55 days before reaching land—the Scilly Isles at the southwestern tip of England. After resting for one day they continued on to their final destination, Le Havre, France.

Joan B. Minnis
McLean, Virginia

Dear Sir: William Muldoon's task in training John L. Sullivan for his win over Jake Kilrain was almost as taxing as the bout itself, and our sleepy, quiet, beautiful little town of Belfast in southwestern New York figured greatly in that win.

On a hill above the town and the Genesee River stands the old Muldoon farmhouse. To isolate John L. from his guzzling buddies and the saloons of New York City, Muldoon brought him here to train. It was no easy task to keep J.L. from the three saloons in town. My mother, who was 13 at the time, later recounted how Sullivan would sneak away, head for the saloons and get roaring drunk and mean. The cry went up, "J.L. is on the loose again!" and someone would mount his horse and ride up the hill for Muldoon, who would get out the horse and buggy, corral J.L., take him home, sober him up and start his strict training all over again.

Just east of the town square is the Catholic church and the barn where the priest kept his horse and buggy. There Muldoon set up a training ring. The old iron rings where Sullivan built muscle by chinning himself still hang from the big cross beams. Every day Muldoon hitched his team of fast horses and made J.L. run the backcountry roads behind the buggy, the horses pacing him.

William Muldoon is buried in the Belfast Riverside Cemetery, and the old church barn is open for Fourth of July celebrations, when all can see where John L. Sullivan trained.

Mavis J. Tucker
Belfast, New York

Dear Sir: While Thomas A. Edison may have frequented Harry Hill's Dance Hall in the spring of 1881, it could not have been to see how his light bulbs were working. Edison perfected the light bulb in 1879, but his first central commercial gen-

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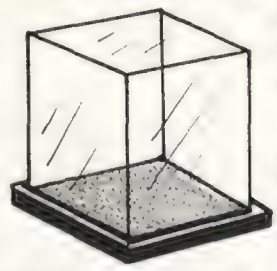

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erating system did not go into operation until September 4, 1882. Prior to that he had installed "isolated systems" in some private homes and commercial buildings, but Harry Hill's is not listed among them.
Kenneth Kowald
Richmond Hill, New York

Mall

Dear Sir: Your item about Wilbur Wright in Pau reminds me of an incident that occurred there at the time. It was told me by the son of a witness when I was American Consul in Bordeaux in 1962.

The business leaders of that self-contained community of 60,000 were curious about this eccentric American who lived in their midst and spoke virtually no French. So they invited him to the annual banquet of their Chamber of Commerce, at the end of which, after many toasts and speeches, the president asked Mr. Wright to say a few words.

The tall foreigner stood up, stared at his French hosts and drawled: "*Les perroquets parlent beaucoup mais ils ne volent pas. Moi, je vole.*" ("Parrots talk a great deal but they do not fly. As for me, I fly.") He sat down to warm applause. *Touché.*
Paul F. Du Vivier
Washington, D.C.

The peacock's 'I'

Dear Sir: I have decided to break a lance in defense of peacocks' pride. Despite Mr. Foote's assertion, peacocks have many a reason to be not vain, but proud.

In the *Book of Hours of Engelbert of Nassau,* the miniaturist used peacock feathers as the borders of the Annunciation and Visitation of Mary and of the Epiphany. The subjects, of course, preclude any connotation of vanity—and the peacock appears in untold representations of the Epiphany during the Renaissance. The reason for this iconography in Christian art is that the peacock was a symbol of immortality and of the incorruptible soul.

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The 1985 Mercedes-Benz 300SD and 380SE: How can two such different sedans be so much alike?

ONE OF THE AUTOMOBILES dashing along in the picture above is powered with the direct descendant of a record-shattering turbodiesel performance engine.

The other is propelled by a lightweight aluminum-block gasoline V-8, cat-quick, turbine-smooth.

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Whether the numerals on the trunk lid read 380SE or 300SD, this automobile is designed to be a *stable* driving platform; no luxury-car sponginess. A taut suspension and rigid body structure help absorb the commotion of rough-road driving. Roller-coaster country roads are not a chore

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Braking System, incorporating a technology that represents the single greatest advance in braking control since the disc brake.

but a pleasure to negotiate.

Yet passenger comfort approaches the sybaritic. From fine velour carpeting to hand-worked wood trim to myriad electric, electronic and other amenities, life inside this cabin is lived first-class.

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Beneath it all, the 300SD and 380SE are remarkable exercises in safety engineering. For 1985, Emergency Tensioning Retractors are fitted to both front three-point seat belt mechanisms–meant to instantaneously tighten the belts in the event of a major frontal impact. Additionally, you may now order either model with the Mercedes-Benz Supplemental Restraint System,† adding a driver's-side air bag and other elements to the vital cause of occupant restraint.

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Around the Mall and beyond

"Coming down in the early morning from his bedroom in his grandmother's house . . . in F Street and venturing outside . . . he found himself on an earth-road, or village street, with wheel-tracks meandering from the colonnade of the Treasury hard by, to the white marble columns and fronts of the Post Office and Patent Office which faced each other in the distance, like white Greek temples in the abandoned gravel-pits of a deserted Syrian city."

That's a first impression of downtown Washington in 1850, saved for us in *The Education of Henry Adams*. He was a very bright and perceptive 12-year-old and would grow up to be one of the great savants of his day, but there was one thing Henry Adams didn't know. Two of the three buildings he mentioned would, in what was to him the hazy and uninteresting future, become part of the Smithsonian. The Patent Office was enlisted by the Institution in 1958. And the old General Post Office's transfer was approved last fall, 134 years after young Henry took note of it. (We have no plans for the Treasury, as yet. Tempting, though.)

Soon after its long-sought acquisition, I visited the old GPO building in Henry Adams' tracks and found that the "earth-road" was now a bustling F Street, that newer buildings keep you from seeing the Patent Office and the GPO in the distance, and that when you reach them you find that both have lost their new "white marble" look. They've actually improved, thanks to the kindly patina of the years. The Patent Office, now housing the National Portrait Gallery and the National Museum of American Art, has a handsome suntan, as though it had just returned from the Bahamas. There's a lot of actual marble evident in the GPO, and it, too, looks attractively off-white.

A closer inspection reveals the marks of age on the exterior walls. Air pollution has spotted and pitted the marble, and an attempt in the 1960s to chivy away roosting pigeons with a jolt of electricity has backfired. Insulators have given the stone a bad case of caries.

Inside, however, the old place retains great charm and elegance. Doric columns

Solid charms of old General Post Office, recently approved for transfer to the Smithsonian, are captured in a vintage view.

A Lasting Tribute to America's Vanishing Breeds...

Presenting a fine, limited-edition porcelain figurine, created by famed American sculptor Roger Brown, and inspired by one of the most intriguing of all wild animals: the blue-eyed, Eastern cougar.

Throughout history, the forces of nature have threatened the survival of some of the world's most interesting and unusual breeds. To focus attention on these endangered species, famed sculptor Roger Brown and River Shore, Ltd. have produced their first-ever limited-edition collection of animal figurines inspired by *Babies of Endangered Species.*

After months of research, Brown chose "Sidney" the Eastern cougar to premiere this collection because of his handsome looks and playful manner. This tawny-buff and brown cougar's blue eyes dance as he rolls on his back and toys with a twig. His expressive tail wags between his legs.

It has been three years since Roger Brown has offered a baby animal figurine, and thus the "birth" of "Sidney" is causing a stir among collectors who know that many Brown works – especially his first-issue "Akiku" seal figurine from 1978 – have appreciated significantly in value in the market place.

"Sidney" is the first of eight Roger Brown original sculptures in the *Babies of Endangered Species* Figurine Collection – including a baby grizzly bear, a sea otter and five other charming, hand-painted porcelain pieces. As a series subscriber, you will be issued subsequent pieces at intervals of every two months at the guaranteed issue price of $45.00 for each figurine, payable in two convenient installments.

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Because the edition is so small compared to the number of Brown and River Shore collectors, and because of the charm and appeal of "Sidney" and the widespread reputation of sculptor Roger Brown, *a prompt sellout is anticipated.* Be sure to return your reservation by the final postmark date to guarantee its consideration. To be safe, order today! The Hamilton Collection, 9550 Regency Square Blvd., P.O. Box 2567, Jacksonville, FL 32232.

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at its doorways, in colored marble, have darkened richly to a hue that could only be described in automobile showrooms—"plum-biscuit," perhaps. The older section has barrel-vaulted corridors and rooms where the groins of the intersecting vaults are etched with plaster moldings.

"All these groined-vaulted rooms are structurally honest," Cynthia Field told me. "The ceiling vaults arch down to the corners of the rooms, which bear the weight along with concealed tie bars. The walls are mainly curtain walls. They don't hold anything up."

Cynthia Field is an architectural historian at the Smithsonian. She agreed to guide me, not only through the building, but through the intricate story behind it. One of the first things I learned from her is that the old GPO had two architects.

Robert Mills came first. A Charlestonian, he was raised on the Greek Revival style of our Federalist days. In 1836, he became architect of public buildings in the nation's capital. He designed the Treasury and was supervising architect of the Patent Office Building when he was called away to take on the General Post Office Building.

Along the way, he had studied the architectural books in Thomas Jefferson's library at Monticello. The hours he spent there had their effect, for he approached the GPO with an outlook that, in many ways, reflected Jefferson's passion for European design.

"Look at the outside," Cynthia told me. I did so. "See that palazzo look? The real facade starts at the second floor where the colonnade is. That's pure Italian. What is now the first floor was originally at street level, but the street has been lowered a great deal since the 1830s."

On the inside, after mounting a gracefully cantilevered stairway that even I recognized as beautiful and extraordinary, Cynthia pointed out far more decorative touches—a Greek frieze, more moldings, more sense of richness.

Then we rounded a corner and met a whole new style. The barrel-vaulted corridor suddenly developed a flat ceiling ridged by concealed iron beams. No more groined vaults. Construction was obviously not stone, but iron. How come?

It turns out that Robert Mills did all he could with what he had: one wing of what was supposed to be four wings, surrounding an open courtyard. He finished the south wing in 1842. Then it took 13 years for land to be acquired and work to start on the rest of the building. Thomas Ustick Walter, a Capitol architect, was then called in, and very cleverly joined the outside walls of his new wings to Mills' south wing. You can't make out the join from the street outside.

Inside the building, however, Walter slipped quite gracefully into his own style, based on the then modern construction technique of iron beams and uprights. So, walking along the corridor, you find that suddenly the groins vanish, the ceilings of the offices stretch higher, the decorative moldings are cast-iron instead of carved plaster, the staircases become square no-nonsense affairs instead of Mills' curving cantilevers.

The building continued serving the government: General Post Office, with a working substation that's still being used; General Land Office and Bureaus of Education and Indian Affairs; Selective Service Agency for World War I; Tariff Commission; International Trade Commission. In 1845, Samuel F. B. Morse set up his telegraph in an outbuilding (since

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torn down) and it became the first public telegraph office in the country.

Richard M. Lee's fine book *Mr. Lincoln's City* describes the scene during the Civil War when the cellar of the GPO was requisitioned as an Army commissary depot: "The doors banged as officers stamped in and out, submitting requisitions and drawing food for their units. Heavy barrels of coffee, rice, crackers and other staples were rolled up the marble stairs and carted noisily away. . . ."

Cynthia Field led me down to what I presumed was the "cellar," a subbasement storage area, where, sniff as I might, I could detect no hint of Union Army coffee. A lot of other things were stored there, however, and steel plates on the floor showed where steam pipes led into the building from the outside.

Farther into the gloomy innards of the place we came to an arched doorway, obviously built for people as well as steam pipes. This is the entrance to a tunnel leading over to the Patent Office Building, under what is now a pedestrian mall. It will certainly be used to connect this new Smithsonian building with the Smithsonian's two art museums across the way. But, says Cynthia, there's some doubt that large canvases could be carried through it without making it bigger.

Why large canvases? Because the GPO is envisioned as a center for American art. There will be room for special exhibits, for much-needed office space, for, perhaps, the entire Archives of American Art, which is now squeezed to distraction.

A huge, high-ceilinged room in the building, lit by broad skylights, has been cut in two horizontally by another floor. The Smithsonian hopes to restore this room—once the Dead Letter Office—to its original size. Deeper yet in the GPO's intestines is a sub-subbasement, which seems to lend itself to development as an auditorium. Trouble is, the ceiling needs a good deal of shoring up.

"It makes you a little uneasy," Cynthia said, "because the courtyard is right above this area, and cars still park there." I looked around, unwillingly picturing a delivery van suddenly dropping into fourth row, center. Steam hissed from a near-fatal aneurysm in an ancient pipe. The whole eerie room, dank brick walls above an earthen floor (concealing who knows how many dead letters), suddenly seemed to typify in the extreme the sad neglect of a grand edifice.

There must be, in fact, a great deal of repair before the GPO goes into service. The electrical system fails, the walls leak mysteriously, people are warned not to drink from the drinking fountains. The heating and cooling systems need renovation because temperature and humidity must be controlled in an art gallery.

Also, the plans for the courtyard call for glassing it over. In his statement before a Congressional subcommittee, S. Dillon Ripley, then Smithsonian Secretary, called this area "a key component of the plan" and envisioned it as "an attractive sculpture garden, dining area and public reception space." It'll have to be shored up first, though.

The Smithsonian is delighted to have this wonderful old building. It is hoped that in an estimated four years it will be ready to serve beside its old neighbor, and the two will form a choice Smithsonian enclave in the heart of downtown Washington, away from the Mall.

That's a good thing, and I for one await it eagerly.

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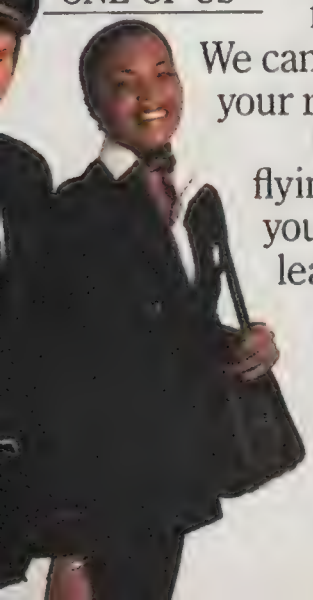

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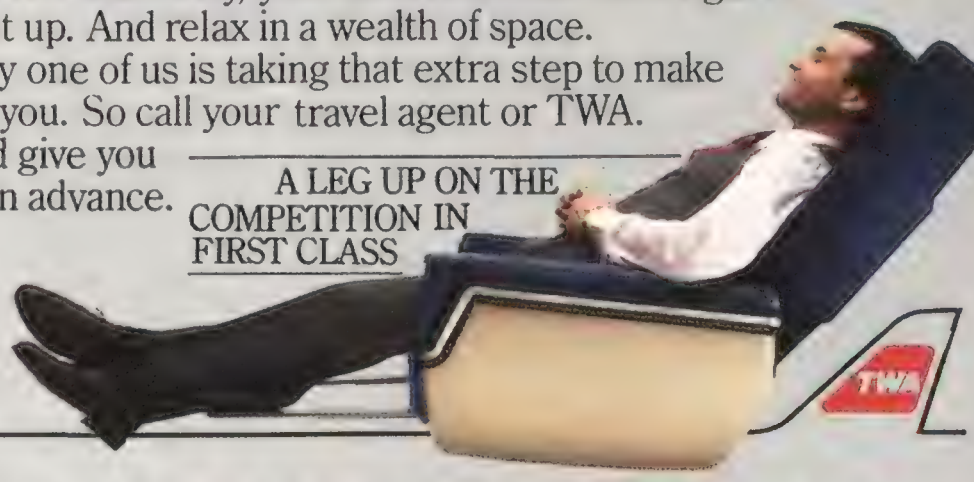

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Phenomena, comment and notes

A daydream in a traffic jam leads to a modest proposal for highway signs that alert drivers to the real world

One of life's pleasanter frustrations is traveling in some new place without being able to stop. Strange grass *is* greener, and strange woods *are* more mysterious and more inviting. A pond you have never seen flashes by and somehow it becomes the idealized pond of childhood, the Smiling Pool of Thornton Burgess, and also the ultimately understandable ecosystem, the site of all that interlocked activity Franklin Russell brought to life in his *Watchers at the Pond.* The unknown pond gets the benefit of every doubt, just as the male mind, working with only the flash of sunlight on hair as a woman disappears around a corner ahead, fills in the details of a rare beauty.

But one normally is traveling in some new place to get to a destination at a certain time and cannot stop, even for the ultimate pond. On a train or a bus, one is caged and can only stare with longing. But even in a car, one is a prisoner of time: to stop for an hour is to be an hour late at the destination. So one plunges ahead, watching the road signs, glancing at the clock, and the miles slip by. The highway itself is the antithesis of life, a featureless ribbon curving through space to the horizon, a linear island. But even that monument to sterility loses at the edges, where grasses and "weeds" push up through the shoulder, searching out the smallest cracks like seals looking for holes in the ice. And just beyond, highway-department mowers fight their losing war against all green and growing things.

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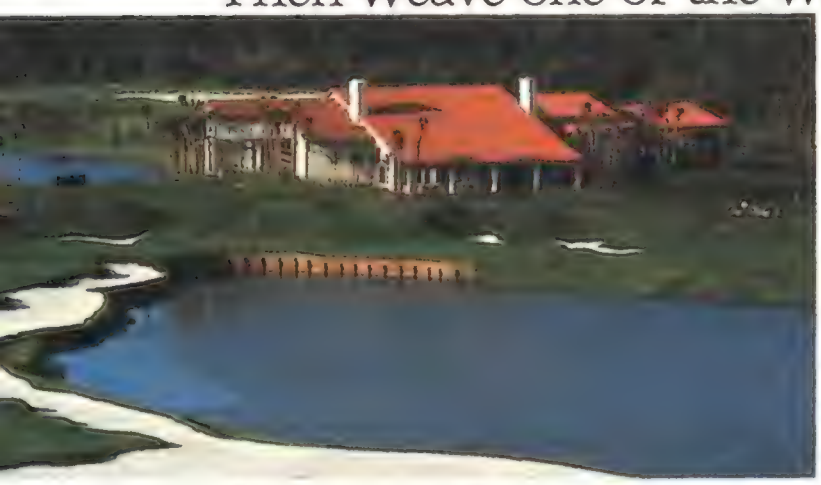

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Beyond the mowing is the real thing: meadows and thickets, abandoned farm fields, second-growth woods, the "wastelands" of swamp and marsh. Animal life encroaches on the highway, too. Box turtles cross the pavement, rabbits nibble the grass. Sometimes the two mix badly; I once counted three road-killed deer per hour on an interstate in Pennsylvania.

In places it is easy to stop—for a scenic overlook from which to take in valley or gorge below, or for the rainbow or sunset you just noticed in the mirror. But at other times the decision is less simple. Can you really get to that pond from the highway? (One editor here always carried an inflatable boat in his car for just such occasions.) Will the owners violently object? (If all of us had good manners all the time this question would arise less often, but that thought is for another daydream.) And once there, how will you know what you are looking at? (I would like to have a local naturalist at my shoulder at all times, offering commentary on the flora and fauna new to my eyes; this is not always possible.)

More difficult still is the question of when to stop. Suppose I stop for this pond, use up every minute I can humanly spare, and then ten miles down the road find another that is larger, wilder, a veritable hothouse of rare and exotic organisms? What if I gave an hour to a forest not all that different from home and then 100 miles farther north and 2,000 feet higher have to highball past trees I've never seen?

I've been thinking about such things since I had the good fortune one hot day last September to get stuck on the New Jersey Turnpike. As soon as we got on, heading south, we hit a construction bottleneck. There we sat, lulled into a trance by the rhythmic idling of tractor-trailers. Motion in the distance finally caught my eye, however. Looking under the belly of the semitrailer alongside us I could see something of the Hackensack Meadowlands. The tide was out, and the dark mud was alive with shorebirds and waders, herons and gulls. Beyond them, high on an artificial hill, garbage trucks, bulldozers, flames and smoke made a hellish silhouette against the setting sun. But along the tidal channels life went on as it has for 10,000 years, a sight I surely would have missed at customary turnpike speeds. And during that half-hour respite,

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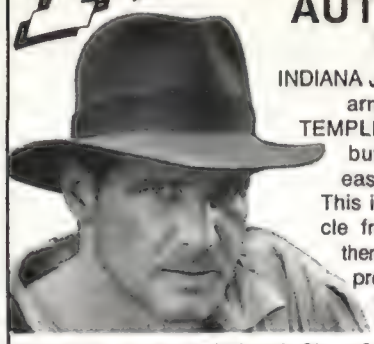

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Sculptured bell shown actual size.

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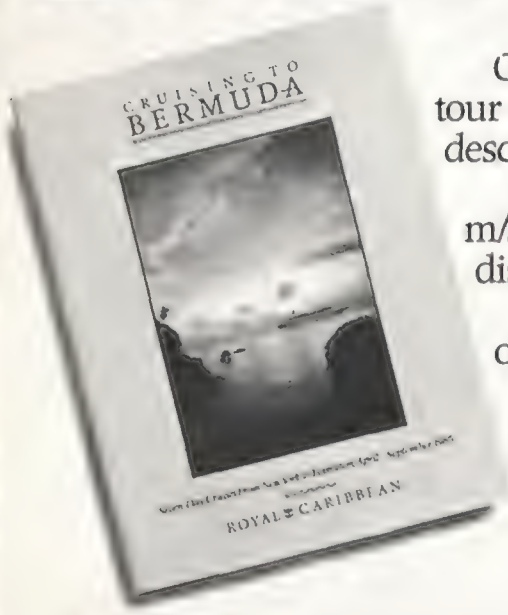

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when control of my time had been taken from me, some modest proposals flickered into my mind.

The first has to do with highway signs. The ones we have are fine, as far as getting to the next city goes. Each interchange is carefully marked, each exit identified. But with few exceptions the signs refer only to the works of Man. There is precious little to tell you about the land you are traversing, or the water. Next to the sign that tells me it is 25 miles to the next town I would like to see one that tells me it is 19 miles to the next tidal marsh or 75 to the coastal plain. It is useful to know that this is the exit for a certain town, but it would be even better to know that it is also the exit for a cypress swamp near the northern limit of its range. I'm not asking that every tree be labeled, that we turn the nation's highways into nature trails, but it is hard to imagine that there is a 50-mile stretch of highway anywhere in the country with no natural feature of some interest.

For the incorrigible naturalist, special signs could be erected at state lines. When you drive into a state, you are likely to be welcomed and informed of what channel police monitor on CB radios. I would add a single small sign giving the telephone number for the birding hot line in that state. Then one quick call would tell you what has been happening that week in the area you are entering. Compilers of such hot lines could broaden them to report unusual mammal sightings and what flowers are blooming.

The map companies could publish regional atlases that do for landforms, botanical associations and wildlife what their drivers' atlases do for motels, restaurants and sightseeing musts. A driver could plot a course by habitat and ecosystem, and learn to see the geology of an area as easily as the highway route signs.

Until my ideas are adopted by acclamation, I'll have to make do. With the help of every guide I can get my hands on, every geological map, I'll try to be a more intelligent traveler—the kind of tourist who reads the books before he sees the sights. Most difficult of all for a world-class procrastinator, I'll teach myself to leave early on trips, to build into the timetable an extra two hours for that unknown pond. And someday I won't need so many signs.

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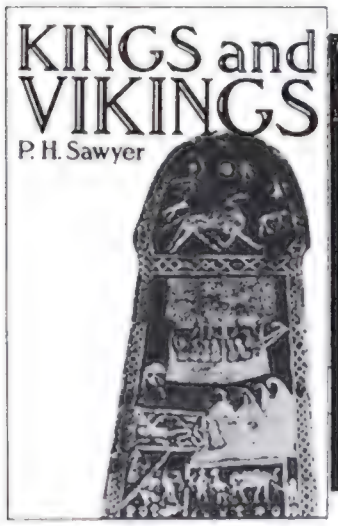

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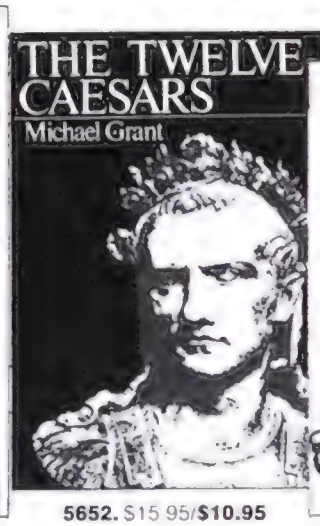

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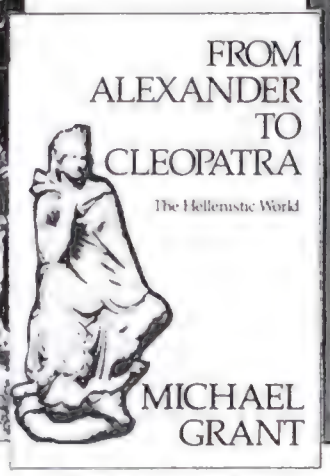

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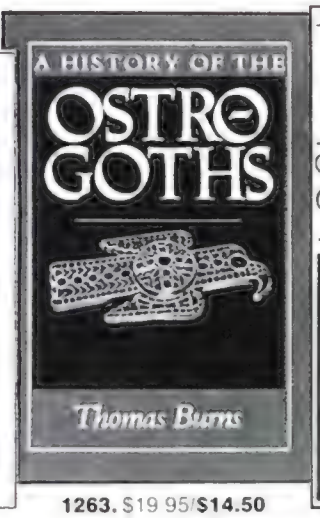

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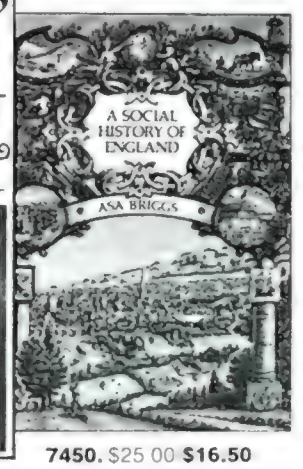

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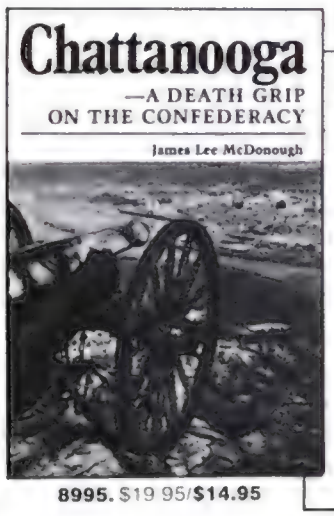

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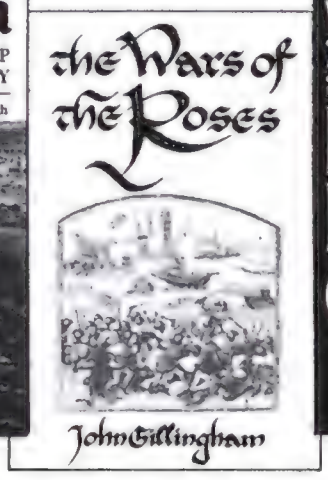

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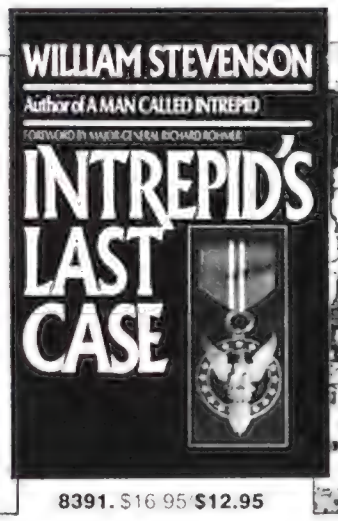

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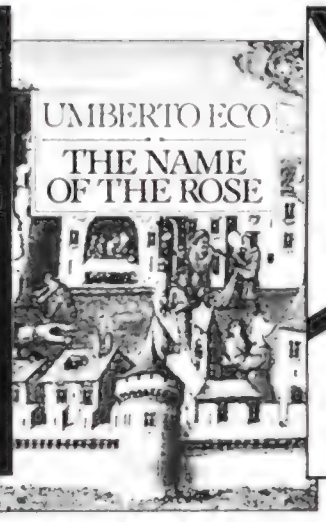

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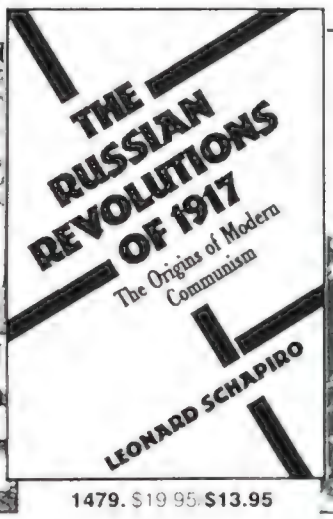

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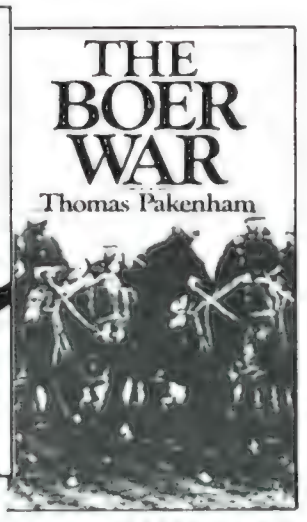

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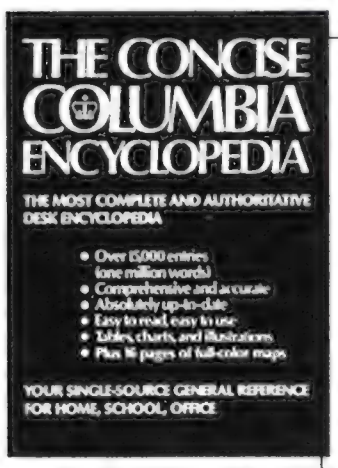
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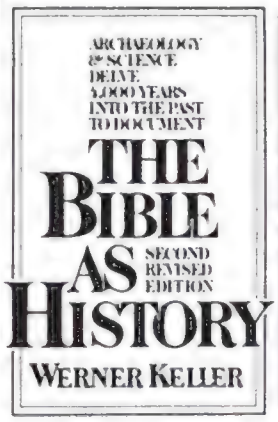
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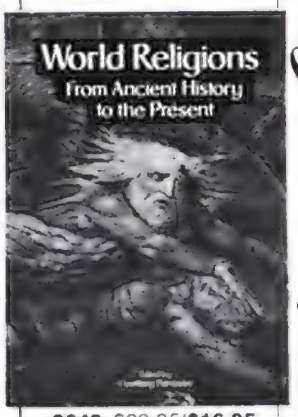

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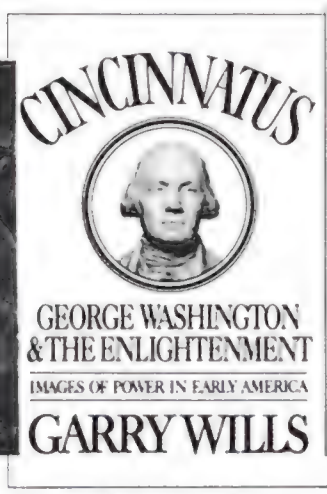

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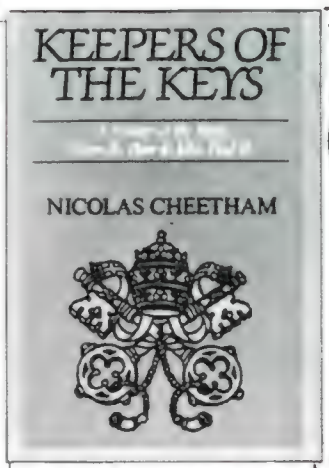

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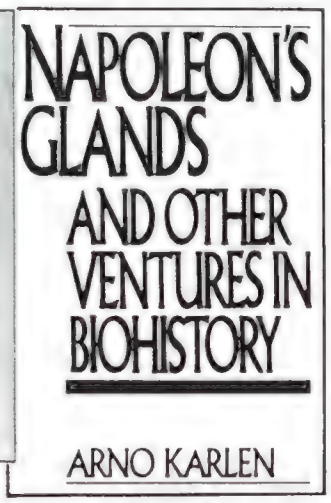

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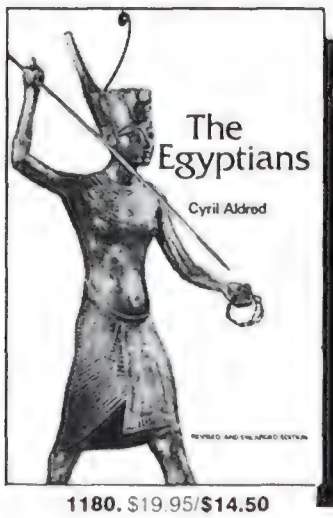

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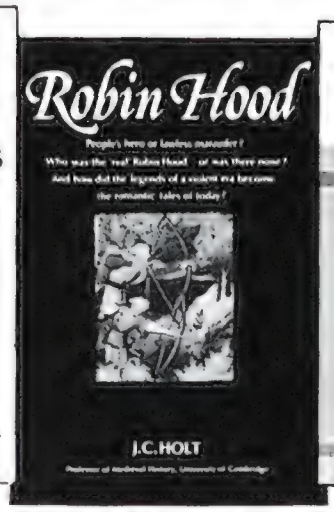

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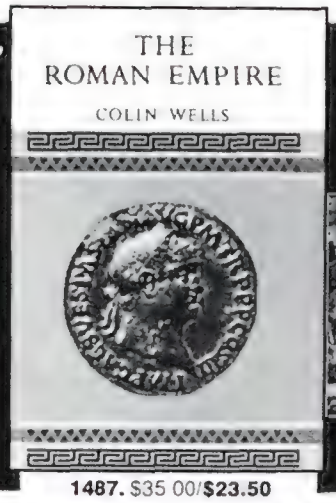

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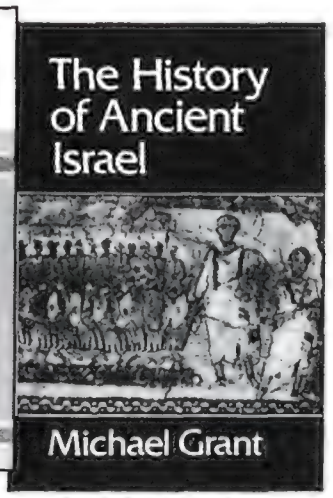

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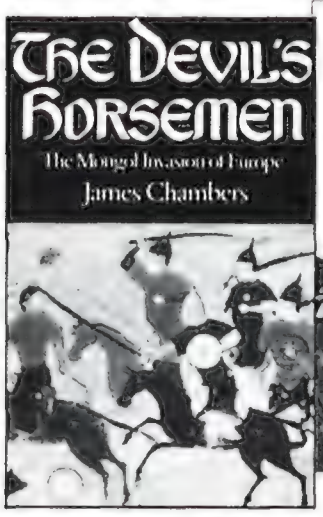

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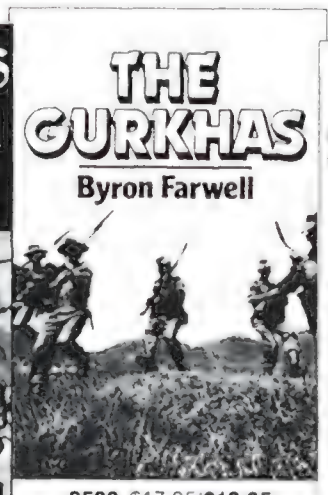

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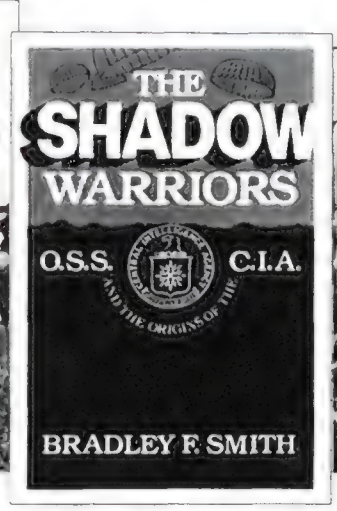

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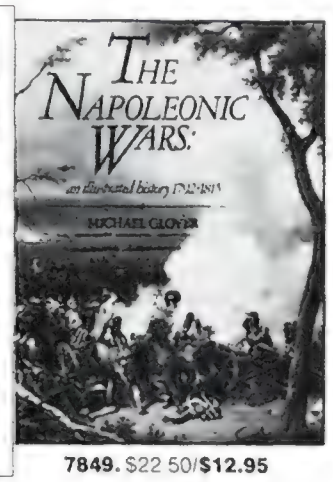

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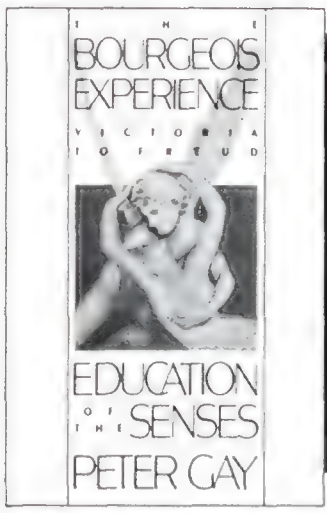

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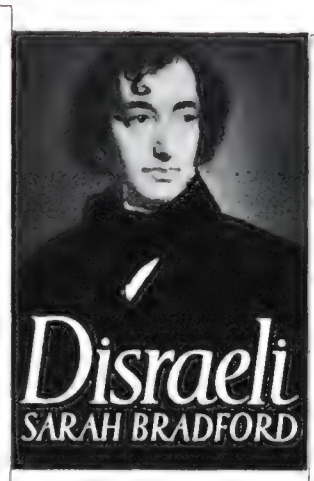

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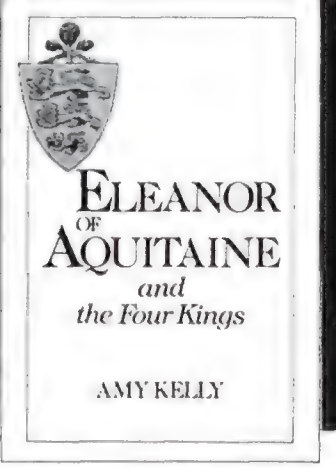

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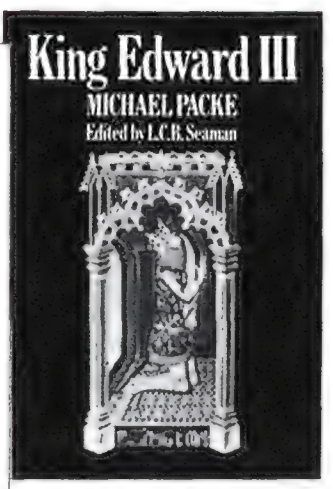

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Points of origin

Sistine Chapel, The Vatican, Rome

In this detail from Perugino's fresco (c. 1482) in the Sistine Chapel, Christ hands the key of heaven to a kneeling St. Peter.

Keys are traditional symbols, from St. Peter at the pearly gates to the janitor with his jangling ring

If you have ever bought a house or a car, or even rented an apartment, at the moment you were handed the keys you took part in an ageless ceremony. You may not have stopped to think that something as simple and utilitarian as a key carries so great a tradition of meaning in the art and religion of our daily lives. But the tradition turns up whenever a visiting dignitary—politician, astronaut or Olympic hero—is presented with a huge, obviously bogus but beribboned key to the city. This, in spite of the fact that the town is no longer, and never was, protected by walls with lockable gates.

In some places the tradition has more force to it, even today. Writer Alex Shoumatoff, reporting from deep in the Ituri Forest in Zaire, notes that a local policeman there wears no badge, but rather sports a set of four keys as symbols of civic authority: two of them fit desks in the station, another is for the policeman's house, the last is a skeleton. That key ring is all the badge he ever needs.

In our country, the key as symbol of authority goes back to Colonial days. William Penn first arrived in the New World to lead his colony on October 27, 1682. After his great ship *Welcome* dropped anchor off New Castle, Delaware, Penn proceeded directly to the town's fort for an elaborate ritual in which he was given the key to the defensive works, as well as a piece of turf with a twig in it and a porringer of river water and soil. With that, he was in charge.

In Williamsburg, Virginia, a somewhat similar ceremony, in which keys were the featured performers, was acted out on Friday, November 30, 1705, signaling the completion of the first Capitol building. On that day, the four keys to the structure's doors were called in from master builder Henry Cary and broken in the presence of the Speaker and several members of the House of Burgesses.

A "Ceremony of the Keys" has been played out every evening for 700 years at the Tower of London. At precisely 9:53 each night, the chief warder makes symbolic rounds of the castle to lock the gates in turn. Finally, at Bloody Tower archway, a stern sentry demands "Who goes there?" Answer: "The keys." "Whose keys?" "Queen Elizabeth's keys." The ritual's last words are these: "Advance Queen Elizabeth's keys, all's well."

The Constable of the Tower, a dignified and stately office held by military heroes and other important personages—once by the Duke of Wellington himself—is known by his insignia, a pair of gold master keys. On his installation, each new Constable receives the keys on a velvet pillow directly from the Lord Chamberlain, who intones: "I have the honor in The Queen's name and on The Queen's behalf, to hand to you the keys of the Tower of London and to charge you with the custody of the Tower itself."

Since the symbolic force of all keys lies in their power to lock and unlock, a number of English words and phrases have come to depend on that image. The "king's keys," for example, were the crowbars and hammers legally used by the royal constables to break down the doors of outlaws and scofflaws. When a Dickens character in *Pickwick Papers* arrives at an inn after the gates have been locked for the night, he is told: ". . . you've got the key of the street, my friend."

In Latin, key is *clavis*. Thus, the clavicle (from *clavicula*, little key) is the

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collarbone, from the fact that this double-curved bone is slightly key-shaped and helps to gird together the upper body.

There is also a whole train of meanings from *clavis* that have to do with music. In 1609, English composer John Dowland defined the keynote by observing that "A Key is the opening of a Song, because like as a Key opens a dore, so doth it the Song." The clavichord, a forebear of the modern piano, is an instrument in which a *clavis* makes a musical note by the striking of a *chorda*, or cord. The keyboard is a collection of such keys. A clavier originally meant a man who was a keybearer; in time the word came to mean yet another keyboard instrument.

Consider also the musical clef, similarly derived from *clavis*. As an anonymous Victorian noted, writing in 1856: "The object of the cleff is to divide off and enchain the sounds within a certain confined compass. That which locks, unlocks; that which closes, discloses; hence the key makes clear the proposed confinement or compass of the sounds." This solid connection with locking, confining and closing leads to the concept of the keystone, the wedge-shaped block that holds the other stones or bricks in an arch.

To the Greco-Roman world goes the credit for depicting their gods with keys representing their powers. Athena is shown with the keys of Athens; Hecate, with the keys to Hades. Janus, the door-keep god, holds keys in both hands. We derive the name of our first month, January, from him because with his two faces he looks both to the future and the past, and holds the door into the new year. But we also get janitor from the same source and from the name of the Roman servant who held the keys to a Roman estate. A nice arc of coincidence from those days to ours is provided by the fact that janitors still carry pendulous key rings.

Of course, the figure most often associated with keys through the ages is St. Peter. His connection with keys comes directly from a passage in St. Matthew: "And I will give unto thee the keys of the kingdom of heaven." Ever since, painters and sculptors have made those keys the symbol of St. Peter.

The image is so strong and recognizable that Milton, in a famous couplet from "Lycidas," could describe St. Peter without having to name him outright: "Two massy keys he bore of metals twain/ (The golden opes, the iron shuts amain)." That is all it took, although the distinction between the two metals is apparently Milton's own poetic invention.

That is the great benefit of symbol, in fact. Those keys are as vocal as a sign around the saint's neck declaring his name in neon. The imagery even extended to tavern signs. In London, an old "Cross Keys" inn was often to be found near a Church of St. Peter.

Keys are also an important symbol of domestic authority. Foremost among the figures freighted with this notion is St. Martha, who was revered by the early Christians for her devotion to home and hearth. And because Martha was also the sister of Lazarus, it was to her that Christ addressed the words "I am the resurrection, and the life." Despite that lofty fame, her symbol in art quickly became the housewife's bunch of keys.

The notion of the housewife or the maid being recognized through her keys is commonplace in our culture. Oliver Goldsmith used it as a plot device in *She Stoops to Conquer*, where the character Marlow falls in love with his host's daughter, mistaking her for a maid. Says he: "Didn't you see the tempting, brisk, lovely little thing that runs about the house with a bunch of keys to its girdle?"

But bunched keys were not just feminine accoutrements. In pre-Revolutionary Virginia, the head butler for Governor Botetourt, William Marshman, for example, was probably never far from his keys. He was not only in charge of all the palace accounts, but also in direct control of all the supplies, glass and plate needed to run that huge enterprise. As if to formally declare Marshman's domestic power and authority, the restored Governor's Palace at Williamsburg prominently displays a large key ring hanging on the door to Marshman's pantry-office.

The last word on keys in bunches, however, properly belongs to English poet Harry Graham (1874-1936), whose grim humor once detailed the tribulations of a "Mr. Jones" and his unfortunate keybearer:

"There's been an accident!" they said,
"Your servant's cut in half; he's dead!"
"Indeed!" said Mr. Jones, "and please
Send me the half that's got my keys."

Michael Olmert

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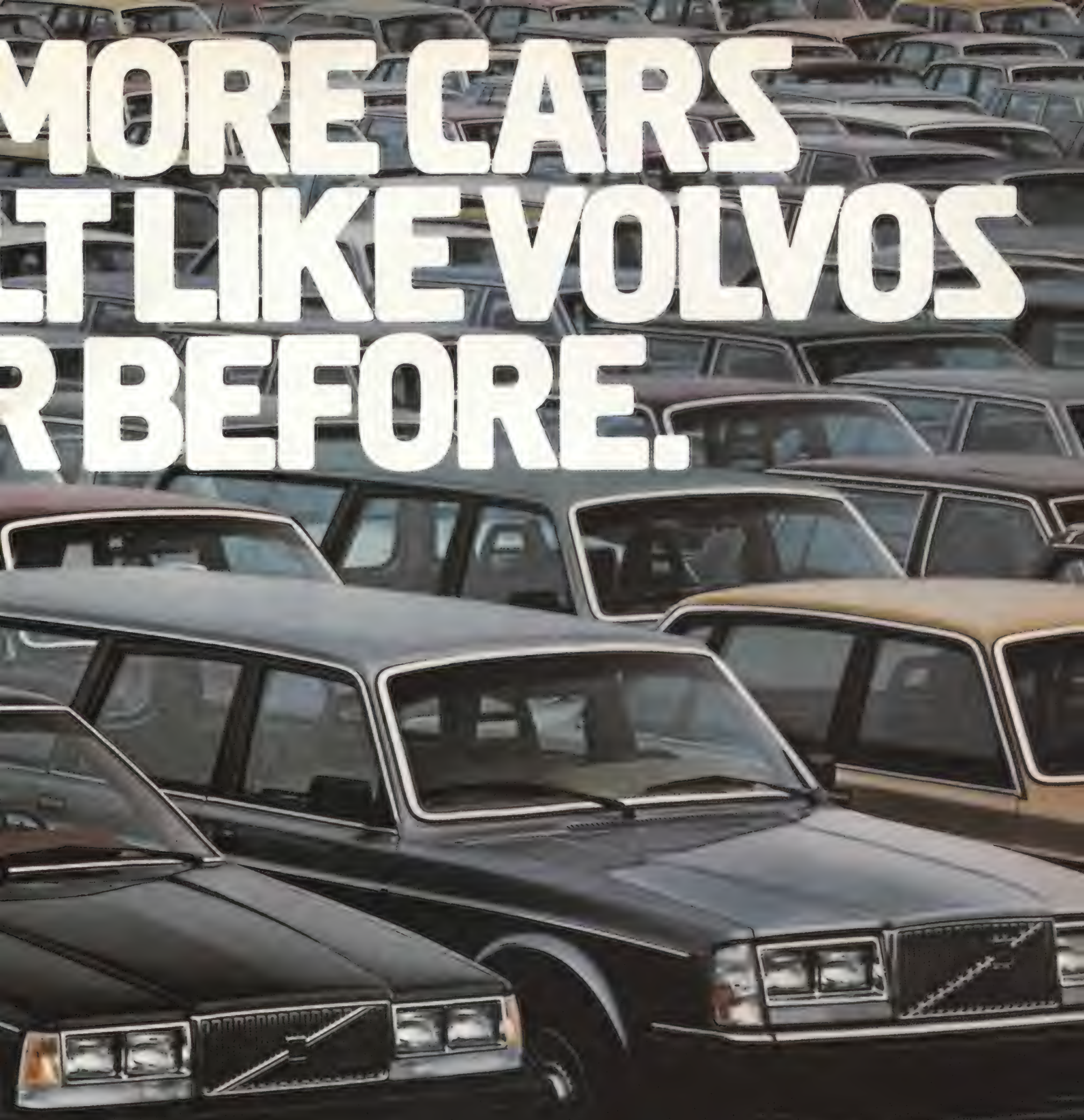

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Villa Giulia, Rome

By Dora Jane Hamblin

The Etruscans' day was short, but they have cast a long shadow

Their origin is a mystery, their language unknown—yet had these talented people united, today's Italy might well be 'Etruria'

All across central Italy this year, in a dozen towns and cities with romantic names—Florence, Siena, Volterra, Cortona, Orbetello, Arezzo, Populonia, Chiusi—the world will celebrate "The Year of the Etruscans." All the great collections, from Rome's Villa Giulia and the Vatican Museums to Volterra's Museo Guarnacci and Florence's Museo Archeologico, will be spruced up and beefed up with additional items fished from seemingly endless reserves in endless basements, and special exhibits on Etruscan artisanship, temples, cities, sanctuaries, gods and mysteries will be mounted in auxiliary halls in each of the key cities.

Florence will play host, in April and May, to the first international symposium on Etruscology in almost 60 years (the last one was in 1928, in Florence and Bologna) and the combined exhibits will play to more visitors than any Etruscan extravaganza since a 1955 show which opened in Zurich and eventually traveled to major cities from Milan to Oslo.

There is no particular anniversary involved in the year 1985 because few anniversaries are known in the life of the vanished Etruscans. Yet a special "year" would be appropriate in any year or every year, for once upon a time Etruscans ruled almost all of the beguiling peninsula of Italy. They were the first great civilization to arise there, when Rome was a clutch of miserable mud huts. A visitor from afar 2,500 years ago would surely have predicted that this land, so cul-

Museo Archeologico, Perugia

Marker detailing settlement of boundary dispute was deciphered but failed to illuminate Etruscan language.

Trace of merriment in enigmatic smile of Etruscan god Turms sets it apart from archaic Greek sculpture.

Photographs by Pierre Boulat

Villa Giulia, Rome

These bronze figurines, about 12 inches tall, were votive offerings put in temples by devout Etruscans.

tivated, so civilized, would one day be called Etruria.

It never came to pass, though even now all who speak of Italy speak, in a way, of the Etruscans: the Tyrrhenian Sea that washes the western coast takes its name from Tyrrhenoi or Tyrsenoi, the name the Greeks called the Etruscans. The Adriatic is named for the city of Adria, or Atria, a Greco-Etruscan commercial center south of present Venice. And the province of Tuscany, heart of the artistic Renaissance, which began in the 14th century, is a corruption of Tusci or Etrusci, the name the Romans bestowed upon the art-loving, music-loving, dancing and fighting Etruscans. They seem to have called themselves Rasna or Rasenna, names that have disappeared except from the gateposts of sentimental foreigners who build villas near the sites of Etruscan necropolises or the lovely hill towns originally founded by the Etruscans.

Though most of the world is at least vaguely familiar with the exuberant scenes of dancers and diners and flute players from the frescoes of their tombs and the distinctive black *bucchero* pottery, deliberately fired to resemble the metal with which they were such expert craftsmen, the Etruscans still are most frequently described as "mysterious" or "enigmatic."

After several centuries of excavation, legal and illegal, and assiduous study, we realize they are neither one. Yet an aura of strangeness persists because of two unanswered questions: where on Earth did they come from, and what was their language?

A people with a multitude of skills

They burst seemingly full-blown onto the world stage about 800 to 750 B.C. in central Italy, often at sites previously occupied by a cruder culture called Villanovan. Unlike their neighbors and the Italic tribes in other parts of the peninsula, they were skilled road builders, hydraulic engineers (more than 28 miles of cuniculi or underground water passages have been found just north of Rome alone, to control and channel surface water), sculptors in bronze and terra-cotta, painters of fresco and pottery, miners of iron ore from the island of Elba (metal-hungry Italy mined Etruscan slag heaps near modern Piombino in both World Wars, and experts say the heaps indicate that Etruscan miners must have dug out and worked from 10,000 to 12,000 tons every year for 400 years).

They were farmers and sailors, trading with Carthage in North Africa, with Greece and her colonies. They were expert horsemen. Their infantry rushed into battle in sturdy shoes with taut laces, secret weapons that may have won more battles than their swords.

But where had they come from, these seemingly invincible people? In their own time, in the fifth century B.C., the Greek historian Herodotus stated the case

Museo Guarnacci, Volterra

Museo Nazionale, Tarquinia

Stylization of attenuated bronze youth, second century B.C., contrasts sharply with finely detailed and sprightly chariot horses that once decorated a temple pediment of the third century at Tarquinia.

Clue to a pastime of Tarquinian youths is preserved in diver from Tomb of Hunting and Fishing, c. 550 B.C.

firmly: they came from Lydia, an ancient kingdom in Asia Minor now in today's Turkey. A great famine occurred, he said, probably about 1200 B.C., and the king divided his people into two groups. They then drew lots and one group stayed, the other went down to Smyrna (the ancient name for Izmir) and set sail across the Mediterranean. Later writers, including Strabo, Horace, Plutarch and Cicero, tended to use the words "Lydian" and "Etruscan" interchangeably.

No one challenged Herodotus for more than 400 years. But then came a Greek with an ax to grind: Dionysius of Halicarnassus. Dionysius had moved to Rome and he and some of his fellows wished to trace Roman ancestry to the Trojan hero Aeneas, and to establish that everything Roman came originally from Greece. But the specific contributions of the Etruscans, who were so different from everyone else on the peninsula, wouldn't fit neatly into this construction of early history. So Dionysius announced that they were autochthonous, a native Italic people. Subscribers to this theory, increasingly accepted, point out that a mass migration of "foreigners" from Lydia to central Italy would surely have been noticed, written about or memorialized as folktale. Because it was not, they believe that Etruscans must be some sudden flowering of an earlier native people, perhaps the Villanovans.

Many a modern Etruscologist is bored with this millennia-old argument. No matter where they came from, the Etruscans lived their brief shining moment on the Italian peninsula and it is there they must be studied, assessed and judged.

If only the language had survived, and the books. It is particularly sad that 2,000 years ago thousands of people must have known the language and the true story. Roman schoolboys must once have learned Etruscan as they learned Greek. The Emperor Claudius had an Etruscan wife and wrote a 20-volume history of the people in the first century A.D. The precious volumes, like the rest of the vast literary heritage, have vanished, perhaps during various sacks of Rome from the fifth century on, or in the destruction of the great library in Alexandria, Egypt, in A.D. 391.

What remain today are about 10,000 inscriptions, most of them very brief and virtually all of them funerary or dedicated to the gods. They can be "read" in the sense that scholars can make out the archaic letters, derived from Greek, in which they were written. But apart from about 200 specific words and the names of people or gods—simple phrases like "Larth had me made" on vases—the meaning of the words is not clear. No bilingual text like that on the Rosetta stone has

The author has been following Etruscan archaeology since 1956, when she reported on the discovery by some eel fishermen of the lost city of Spina, near Venice.

In Tomb of the Lionesses, two beasts stalk beneath ceiling and dancers (right) whirl with giddy abandon.

Hunter with a slingshot aims at outsize birds while dolphin disports off bow of boat in joyous tomb fresco.

Museo Nazionale, Tarquinia

Greek ceramic head of beautiful woman from tomb in Tarquinia shows Etruscan love of Attic artifacts.

ever turned up. There were high hopes in 1964, when archaeologists found three gold sheets folded like letters and buried near a shrine at Pyrgi, a shipping port for the Etruscan city of Caere—today's Cerveteri—northwest of Rome. Two of the tablets were in Etruscan and one in Phoenician. Thus all could be read, but the information added nothing to knowledge of the language itself. They were standard texts in which the ruler of Caere dedicated the shrine to the worship of a goddess the people of Carthage called Astarte and the Etruscans called Uni. What the gold sheets really established was that once, about 500 B.C., Etruscans and Carthaginians lived side by side in the port.

They also confirmed Etruscan ties with Carthage, ties maintained by seagoing Etruscans in an age when other inhabitants of the peninsula hated and feared the sea. Supporters of Herodotus accept as a given that a people who had taken to the sea to save their lives no longer had reason to fear it.

There are haunting clues to an Eastern origin, or at least influence: ancient burial chambers in Lydia and neighboring Lycia are strikingly similar to many Etruscan ones, with rock-cut facades resembling houses or temples. Many Etruscan tombs were packed with sumptuous articles decorated with motifs taken from eastern Mediterranean art—lions, griffins, sphinxes, palm trees and rosettes.

Then there are the famous arts of soothsaying. Etruscan soothsayers read signs and omens in animal livers and interpreted divine will by studying thunder or lightning. It was Julius Caesar's personal Etruscan *haruspex* or liver reader who warned him to "Beware the ides of March," and as late as the fifth century a Roman Pope called upon Etruscan soothsayers to direct thunderbolts against the invading Visigoths under Alaric. Before the Etruscans became the world's most famous practitioners of the art, liver reading had been known most notably in ancient Babylon.

Shock and scandal to Greeks and Romans

Most telling of all, perhaps, is the position of women in Etruscan society. Not even the most romantic have claimed that they were early feminists, but their position of freedom and equality was a source of shock and scandal to both the Greeks and Romans of their day. Lydians and Lycians traced their lineage through both male and female lines—and so did Etruscans. Etruscan women had their own names (not merely feminized versions of the fathers' family names, as with the Romans). They could own personal possessions and are seen in tomb paintings whooping it up with the males, on their reclining couches, at elaborate dinner parties. They turn up, light-skinned, languorous, wearing flowing garments and elegant gold jewelry, playing at

games, dancing, even attending athletic contests with their men. Such behavior got them a very bad press at the time, but admiring respect from later generations. Most of the upper-class women had handsome bronze mirrors engraved with Greek mythological figures or Etruscan gods, often inscribed, showing that indeed some Etruscan women were taught to read.

Several of them loom large in early Roman history, most notably the formidable Tanaquil. She, according to the historian Livy, came from an aristocratic family in the Etruscan town of Tarchna, today's Tarquinia, about 50 miles northwest of Rome. She was married to a local boy whose mother was Etruscan but whose father was an immigrant Greek. About 625 B.C. Tanaquil decided that her husband, as son of an immigrant, was not receiving the respect he deserved. She proposed that they go off to Rome, a young community that might offer opportunity to a courageous man. Some, Livy to the contrary, hold that Tanaquil's husband might well have traveled there not just with his wife, but at the head of a free-lance army of Etruscans from the city that was then the largest, richest and most powerful in all Etruscan territory.

A vast change in the face of Rome

Be that as it may, the man whose name the Romans Latinized to Lucius Tarquinius Priscus became the fifth king of Rome, a real successor to such murky semimythological figures as Romulus, Remus and Numa Pompilius. Livy says Tarquinius was "elected" to the throne. For more than a century, from 616 B.C., Etruscan kings ruled the burgeoning city. (There is argument about the sixth king, Servius Tullius, but it was the crafty kingmaker Tanaquil who put him on the throne.) Thus it was the Tarquins who changed Rome from a village of mud huts to a proper city with temples of stone, they who chose the little Capitoline hill as site and sanctuary of the gods, thereby bequeathing a religious and political heart to the later republic and empire. From the Etruscan semicircular woolen cloak, draped over one shoulder, came the Roman toga. From a symbol of their power, an ax with wooden rods bound round it, came the fasces of Roman kings and magistrates and in our era the name and symbol of Mussolini's Fascists. The Etruscans drained the swamp that was to become the Roman Forum and laid foundations for the city's first sewer system. Its main channel, the Cloaca Maxima, is visible today. Road builders themselves, they introduced to the Romans a Greek device called the *groma*, a surveying instrument that greatly helped the men who were to become the Old World's most famous engineers.

Their domination ended, according to Roman tradition, when Superbus, the last of the Tarquins, raped a virtuous Roman lady in 509 B.C. and so outraged the citizens that they rose in revolt.

Still, it wasn't quite over. Few American schoolchildren who know (or used to know) all about Horatius at the bridge realize that the stirring words of Thomas Babington Macaulay were about Etruscans versus Romans: "Hew down the bridge, Sir Consul,/ With all the speed ye may;/ I, with two more to help me,/ Will hold the foe in play."

The foe was Lars Porsena, ruler of the Etruscan city of Clevsin, and the bridge was the first ever to span the Tiber, a wooden structure called Pons Sublicius. Livy says the bridge fell and brave Horatius swam safely to shore, armor and all. Other historians say Lars Porsena did take Rome and that Etruscan domination finally ended only when his son lost a battle at Aricia, south of Rome, in 506 B.C.

Despite all their contributions, all their skills and

Museo Archeologico, Florence

Lion, serpent and goat are melded in ferocious bronze Chimera, one of the glories of Etruscan sculpture.

Only a small part of vast necropolis at Cerveteri has been explored; these were tombs of the mighty.

all their wealth—Etruscan tombs have yielded more imported Greek vases than all Greece itself—the Etruscans never possessed one talent that the Romans shortly began to demonstrate: the power of organization for concerted action.

Etruscan cities apparently warred with each other just as did the Greek city-states; they were equally incapable of banding together against the upstart Romans. There never was an Etruria in the sense of a united nation. A city rose to power and wealth on the basis of local resources or skills, then ceded leadership to another. Thus Tarquinia reached its pinnacle in the seventh century B.C. making bronze weapons, household goods, candelabra for both domestic and foreign trade. By about 650 B.C. leadership passed to Caere, which made a fine variety of *bucchero* and had exquisite goldsmiths. Then came Veii, home of the finest terra-cotta sculptors including one whose name has survived the centuries: Vulca. By 400 B.C. Fufluna, now Populonia, the iron-working industrial city that faced the mines of Elba across a six-mile stretch of sea, was the dominant power.

For many years scholars spoke of an "Etruscan League" of 12 cities, but it seems to have been far less a league than a religious festival whose annually elected leader performed a largely symbolic role.When Rome lunged out, the Etruscan cities never allied themselves in defense. The first to go was Veii, only 12 miles north of Rome, which fell in 396 B.C. after a ten-year siege. There was a hiatus a few years later when thousands of barbarians from Gaul charged across the Alps and headed for Rome, devastating some northern Etruscan cities on their way. Etruscans and Romans made common cause against them and Etruscan Caere offered asylum both to Rome's holy objects and the vestal virgins. Eventually even Rome fell, and got rid of the raiders only by paying them tribute.

Seeing their chance at a weakened Rome, Tarquinia, Falerii, Volsinii and even Caere took up arms against her, but they made their attacks individually and Rome always won. From 358 until 265 B.C. she picked off the proud cities one by one, until by the time of the Second Punic War against Carthage from 218 to 202 B.C., the humbled Etruscans were coerced into supplying tons of grain, thousands of helmets, shields and spears, and wood for ships to help their conqueror bring down Carthage, their former ally.

The tombs of these later centuries reflect the collapse of the Etruscan dream. Scenes of hedonistic banqueting and dancing give way to somber depictions of death and destruction. Garlands of flowers yield to painted shields and armor. Five centuries of the joy of living, of distinctive civilization, were over.

Of course many Etruscans lived on, uprooted and resettled in Roman towns, conscripted into Roman legions. In 87 B.C. the Lex Julia gave Etruscans the privileges and obligations of full Roman citizenship.

When the Roman Empire fell, even the memory of the Etruscans disappeared. It was Rome that knew them best, and Rome was gone. Etruscan houses of sun-dried mud brick and timber had melted away in pelting rains. Temples with their elaborate terra-cotta basreliefs, their roof tiles and decorative friezes, crumbled and fell. The rock-cut tombs, hacked out for eternity and furnished with the jewelry, the armor, the pots and pans and painted vases their owners would need in the afterlife, remained for shepherds, archaeologists —and thieves—to come upon with awe centuries later. The tombs. And the traces of roads, the underpinnings of ancient bridges, the water channels, the—yes, the "enigmatic"—Etruscan smile on sarcophagus lids and funerary monuments. It was D. H. Lawrence, when he visited their sites early in the 20th century, who wrote what many a 1985 visitor will feel: "How much more Etruscan than Roman the Italian of today is: sensitive, diffident, craving really for symbols and mysteries, able to be delighted with true delight over small things, violent in spasms, and altogether without sternness or natural will-to-power."

The Etruscans' vitality, the sense of exuberant joy reflected in the things they made, leap from the artifacts that will be on display from spring through fall. They still live through the treasures in the museums and in the evocative, strangely bewitching peacefulness of their necropolises. And to many an observer they live still in the veins and arteries of modern Italians. *Salve.*

Patrician husband and wife share lid of sarcophagus, reflecting honored role of women in Etruscan society.

Museo Guarnacci, Volterra

If You Really Want To See Am

There are places, on the North Carolina coast, where the New World is still as new as it was when the first colonists came ashore on Roanoke Island.

Four centuries have passed, since that summer day in 1584. And Sir Walter Raleigh's famous colony has long since passed into the mists of legend.

But now, as then, the marsh grasses whisper among themselves in the rising wind.

rica, Start At The Beginning.

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It's true that groundhogs hibernate in the winter and, yes, males like this one may surface in February.

By Bil Gilbert

A groundhog's 'day' means more to us than it does to him

The notion that woodchucks are able to predict the coming of spring overshadows many of the other things these creatures really can do

But he is not looking for his shadow. He is intent on finding a mate and satisfying his urge to reproduce.

Perpetuating a myth, the Punxsutawney, Pennsylvania, Groundhog Club arouses its official mascot each year.

Beyond the fact that both of them have a day in February when they are celebrated, so to speak, there are some other interesting similarities between George Washington and woodchucks. Both enjoy large, enduring folk reputations, the principal elements of which are entirely fictitious—i.e., the business about Washington's little hatchet, the cherry tree and a silver dollar, and the woodchuck's ability to foretell the coming of spring. These legends have tended to suck the reality out of the man and the species, both of whom deserve better. Washington remains one of the most complex American heroes, while the woodchuck —also known as the groundhog—is one of our most abundant and ecologically significant mammals.

There is not a shred of zoological evidence to support the notion that annually, on February 2, woodchucks pop out of their winter dens, look for their shadows and respond with behavior that provides precise information about the weather six weeks hence. Nearly everyone knows that this is nothing more than a cute story, but it is more or less the only one that's told about the animal.

By way of illustrating the power of myth over matter, take the case of Dr. Robert Snyder. A leading authority on the physiology of the woodchuck, Snyder commenced his work with the animal nearly 30 years ago with a long-term field study in central Pennsylvania. Presently he is the director of research at the prestigious Penrose Laboratories, an adjunct of the Philadelphia Zoological Park. There he keeps about 100 woodchucks and studies viral hepatitis and certain tumors that afflict the animals, and the antigens they produce in response to these conditions. In degrees and ways that make them somewhat comparable to humans, woodchucks are also prone to heart disease, stroke, and assorted cancer and kidney ailments. Consequently, a number of researchers in addition to Snyder are interested in their pathology. Despite the importance of Snyder's work, the only time there is much public curiosity about it is around Groundhog Day. Then, he can always count on some visits from journalists who, having come upon his name as "the

Solitary life of the groundhog

Four furry youngsters huddle at sturdy entrance to den. Mothers usually abandon litters in early summer.

woodchuck man," stop by to ask if indeed the animal can prophesy the coming of spring.

So far as can now be determined, this story began in Pennsylvania, which has always had a lot of the animals and, since the mid-18th century, a lot of farmers of German origin as well. In the "old country," these agriculturists had long noted that the European hedgehog emerged from its burrow in the latter part of winter, a month or so before the coming of good spring weather. There were no hedgehogs in "Penn's woods," but the woodchuck's behavior was so similar that it was assigned the role of spring harbinger. The fantasy about February 2 being *the* day and the nonsense about six more weeks of winter if the woodchuck sees its shadow were invented out of whole cloth and embroidered as a community promotion, first and most artistically in Punxsutawney, Pennsylvania.

Punxsutawney is a small town 85 miles northeast of Pittsburgh, in the heart of the gnarled Allegheny Plateau. In general it is a rocky, hard-to-farm part of the world, but it has its attractions. In the spring, because of flowering trees and plants, and in the fall, because of gaudy foliage, the countryside is often spectacularly beautiful. The winter, however, is generally terrible, being an excruciatingly long season.

The story goes that toward the end of one typically disagreeable winter, probably in the early 1880s, six Punxsutawney good ol' boys became desperate for some relief. Equipping themselves with grub hoes and a jug or two of hard drink, they repaired to a muddy overgrown field on the outskirts of town. There they dug up several groundhogs, whacked them on the head, skinned them and fricasseed the better pieces over a campfire. The stewed woodchuck was washed down with the liquor and when it was all gone, the revelers returned to town in much better spirits than when they left.

Toasting spring with Groundhog Punch

The next year, the members of the original expedition recalled what a high old time they had had and decided to do it again, this time taking some other friends along. Subsequently things snowballed and all of this became an annual stag bash, the date of which was fixed on February 2. In 1886, a local newspaper editor, Clymer Freas, christened the outing group the Punxsutawney Groundhog Club and declared the community to be the weather capital of the world.

By now, the affair has become institutionalized and, to an extent, sanitized. The Groundhog Club sponsors an annual indoor banquet on February 2, at which no woodchuck is eaten but cookies baked in the shape of the beast are served. The drink is Groundhog Punch, a nonalcoholic concoction quite safe for small children

and teetotalers. Before the feast, a delegation of club members—the president, the secretary, the official groundhog handler and a dozen members of the inner circle, including the burrow janitor and the sun sampler—gather at a small park on the eastern side of town known as Gobblers Knob. Some cynics have had the effrontery to suggest that a groundhog from the local zoo is placed in the bunker at the park before the ceremony begins. Club officers insist that the animal simply "appears" there when the president taps on the bunker door with his cane. The groundhog handler picks up the animal and the president speaks to it in "groundhogese," a secret language. A proclamation is then issued declaring whether the creature did or did not see its shadow. The woodchuck's name is Punxsutawney Phil. In a good year, Phil makes the network news, talk shows and the wire services. This is perfectly wholesome silliness, but its relation to natural history is about the same as that of the tooth fairy to dentistry.

Now, as to *real* woodchucks, they are found nearly everywhere in this country east of the central Great Plains and north of upper Mississippi, Alabama and Georgia. In Canada their range extends to the Hudson Bay region and also across the prairie provinces to the Yukon Valley. There is a restricted woodchuck population in Alaska, and a few pockets of the animals can be found in northern Montana and Idaho.

Together with such familiar creatures as the beaver, the porcupine and the gerbil, the woodchuck belongs to the chisel-toothed order of mammals known as rodents. It is part of the ground-squirrel family, which also includes the chipmunk, the prairie dog and the hoary marmot. Technically, in fact, the woodchuck *is* a marmot. It is called *Marmota monax* and differs from its cousin only marginally in size (the marmot is a bit larger) and color (the marmot is lighter-hued). In North America, the hoary marmot is found primarily west of the Great Plains, where it is a familar sight in the mountains and high valleys (p. 69).

In the Northeast, woodchucks are the largest mammals—old males may occasionally weigh 15 pounds—easily and frequently seen. This is because they are diurnal creatures of the fields, thus often available for viewing, and also because they are extremely numerous. There are so many woodchucks that no general census of them has been or probably ever will be taken. It has been reported, however, that woodchucks are commonly found in the Northeast at a density of one animal for each five to ten acres. Perhaps the most spectacular concentration occurred in the 1950s at the Letterkenny Ordnance Depot near Chambersburg, Pennsylvania. This was the site where Robert Snyder began his studies. He and others estimated that there were approximately 9,000 woodchucks on the 10,000-acre military facility.

When spring-cleaning time rolls around, a groundhog uses its nose to excavate dirt and debris from burrow.

The buildup occurred at Letterkenny for several reasons. There is little human activity to compete with or disturb the animals. For a long time the facility was mowed regularly, thus ensuring a constant supply of new, fresh grasses and other plants upon which woodchucks forage. The military supplies are stored in underground caches over which have been built thick earthen bunkers, whose sides make magnificent sites for woodchuck burrows.

There are still a lot of woodchucks at Letterkenny but not as many as there were 25 years ago, principally because maintenance practices have changed. Many of the fields have been allowed to grow up in brush and woodlands and do not provide as much food or open space as they once did. Even so, the situation serves as a good illustration that woodchucks are a species that has generally benefited from human activity in recent centuries.

Prior to the coming of Europeans, it appears, the animals were not especially numerous. They mostly inhabited beaver meadows, old beaver dams, and natural glades in and along the edges of woodlands. The settlers who cleared away the dense forests that once covered the Northeast created millions of acres of very good new habitat for the species. Also, the most formidable woodchuck predators—black bears, wolves,

A frequent SMITHSONIAN *contributor, Bil Gilbert lives in rural Pennsylvania, where he tries to keep the woodchucks out of his lettuce patch.*

Center of the woodchuck's universe is its den, a cozy domicile containing tunnels, a main entrance (top right) and secret entrance (top left). Animal defecates in a special alcove (bottom right), which is covered with dirt when full (upper left). After hibernating in leaf-lined chamber (left), male emerges in late winter and fights other males (far right) until females make their own appearance and the mating season can begin.

mountain lions and fishers, which are relatives of the weasel—were either eliminated or drastically reduced in numbers. Nowadays, foxes, hawks and domestic dogs take a few woodchucks, but their activities have very little overall effect on the species.

On the other side of the coin, our relations with woodchucks have often been, intentionally or otherwise, predatory. Farmers and gardeners wage continuing campaigns against them because they feed on crops as well as on wild herbage. Trucks and autos annually do in many of them. Thousands of them are bagged each year by hunters. Despite all of these activities, the fact remains that there are many more woodchucks now than there were 300 years ago.

The point of woodchuck legend—when the animals emerge in the spring—makes as good a time as any other to pick up the life cycle of the species. In Pennsylvania, the first animals do usually appear above ground in early February. Farther to the south, animals may be abroad in January, while in New England and upper Great Lakes states it may be March.

With rare exceptions, the first animals of the spring are mature males. For several weeks they feed little, if at all, in part because there is nothing much for them to eat. Also they are preoccupied with sex, due to the fierce hormonal tides raging within them.

Since the females continue to hibernate for several weeks longer, the males cannot initially fulfill their sexual urges and so they often battle savagely with each other instead. There are no reports of males killing one another but these encounters are often bloody. A favorite maneuver for a sparring male is to try to grab his opponent by the tail, hang on and overturn him. Frequently the engagement is broken off when the tail of the victim is severed. With their big front teeth, woodchucks can be formidable antagonists to other species, as many a dog has discovered.

After the emergence of females in March, again using Pennsylvania as the locality, mating occurs and three to five young are born a month later. At birth, the tiny creatures are blind and nearly hairless. They remain underground, nursing, for another month or so. Then they emerge and for a time stay around the maternal den, learning to forage for themselves. Not long after they are fully weaned the mother deserts them. Usually alone, the young wander about looking

Solitary life of the groundhog

for suitable homes and may travel a mile in their search. Their mortality rate from predation and accidents is high. The survivors eventually establish themselves in burrows, sometimes digging their own but often moving into dens that have been abandoned by mature woodchucks.

A chuck residence may consist of 50 feet or more of tunnels, some of which may extend ten or 12 feet below the surface. One curious field researcher found that a single animal had pushed and carried 716 pounds of dirt out of its tunnels. In a woodchuck burrow (pp. 64-65) there are usually several small sleeping "rooms" dug above the main tunnel. Also there is a commode room, a small alcove in which the animal defecates. Once it is filled or becomes objectionable it is filled in with dirt and new facilities are dug.

Well-established woodchuck dens have one prominent entrance, marked by a large, bare mound of excavated dirt. This pad serves as a kind of front porch on which the resident rests and takes the sun. It also functions as a sentry post from which the animal can survey the neighborhood scene. If alarmed, the woodchuck will dive into the hole. Just before doing so, it often emits a piercing whistle, which is why one of its common names is whistle pig.

In addition to the well-marked main entrance, there are generally several secret ones hidden in the brush, often dug between protective tree roots. Surprised away from the den, a chuck will sprint—with amazing speed for such a stout-bodied creature—to one of these bolt-holes and disappear as if by magic. (If necessary, chucks can also swim strongly and climb low trees.) Once settled, a mature animal seldom forages more than a few hundred feet from its burrow.

In most areas with a relatively good chuck population, there are always more den tunnels than there are animals. This surplus benefits young woodchucks and also a variety of other species. Foxes, raccoons, skunks, weasels, rabbits and smaller rodents often occupy holes originally dug by woodchucks. So do some reptiles, amphibians and even birds such as quail, pheasant and vultures. Normally other creatures move into an abandoned chuck hole, but occasionally impatient ones, it seems, do not care to wait for a naturally created vacancy. One field student reported a peculiar incident that occurred in Ohio and was reconstructed by reading signs in the new-fallen snow. A raccoon entered a den occupied by a mature female woodchuck. The two animals emerged and a bloody wrestling match ensued. "Tracks showed that a raccoon . . . had ridden the groundhog downhill (about 30 feet) and then circled back to the den," the researcher noted. Later observation showed that the groundhog had visited several other nearby dens but, finding them occupied or not to her liking, came back to her own and reentered it. What occurred next could not be determined, but traps were set and the scarred female was captured. The raccoon was not seen again and, as the saying goes, its fate remains unknown.

After the litters disperse in early summer, woodchucks generally lead solitary lives, showing little inclination to associate with one another when they meet by chance. However, Snyder and others have observed enough exceptions to this behavior to speculate that woodchucks may be becoming more social in some of the areas where human activities have increased the carrying capacity of the land.

The chuck's companionable cousins

In contrast to the woodchuck's curmudgeonly ways, some other members of the ground-squirrel family are downright communal by nature. The best known example, of course, is the prairie dog, which thrives in dense populations. Less well known, perhaps, is the fact that the woodchuck's close cousin, the hoary marmot, is highly sociable, too. Most marmots live in colonies, eating and sleeping in large underground co-ops. They play and sun together and use the same trails. The youngsters often greet adults by nuzzling and touching with their paws. In most other respects, marmots behave pretty much like woodchucks. They fatten up on grasses, leaves, flowers and fruit in the fall, sleep through the winter and mate in the spring. But rather than deserting their offspring in the burrow, woodchuck-fashion, marmots allow them to spend their first winter at home.

Although woodchucks can make surprisingly agreeable human companions, it is not a particularly good idea to make pets of them. They are easily angered if they feel they are being restrained, even for benign, cuddly reasons. They do not like anybody or anything

Your kingdom stretches far and wide - from
Land of the Midnight Sun to old world Russia.

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Royal Viking's Voyage Home '85

to get between them and their food containers, nor do they tolerate being thwarted about entering or leaving whatever they are using as a den, say, the space behind a refrigerator. When they are offended, their usual response is to bite the offender, sometimes inflicting a severe gash.

From midsummer to fall, woodchucks get ready for hibernation which, though passive, is in many ways the most interesting and instructive of their activities. The animals prepare by eating a lot and getting much fatter, their body weight often increasing by 30 percent as compared to their early summer condition. When they have attained the proper obesity, mature animals simply stop eating. They then remain active and above ground for some weeks of mild fall weather, living off their accumulated fat.

As cooler weather approaches, fit woodchucks begin to drag leaves and grasses underground to line their winter sleeping rooms. In a properly constructed and insulated den the temperature will remain at about 56 degrees F no matter what the surface temperature.

Many northern mammals respond to winter with behavior that in the broadest sense can be called hibernative. However there are various degrees—three broad categories, in fact—of hibernation. Raccoons and skunks, for example, will become lethargic during bad winter weather, sleeping often and soundly for several days at a time. Lethargic animals show only minor physiological changes. They awaken often and readily and go about their normal foraging and feeding activities. A torpid animal, such as a black bear, will remain drowsy and inactive for weeks on end. Body temperatures lower significantly. Torpid animals are, however, sensitive to outside environmental conditions; they may become more active when the winter weather temporarily moderates.

True or deep hibernation, which is the response of the woodchuck, occurs in relatively few mammals. The woodland jumping mouse is another true hibernator in the Northeast. In this state the body temperature drops to about 37 degrees F and can be maintained there for months. There are other dramatic metabolic changes. Having not fed immediately prior to entering hibernation, deep sleepers do not defecate and urine is reabsorbed in the body. True hibernators are little affected by temporary changes in the surface weather and arouse very slowly. Woodchucks, for example, take about seven hours to reawaken naturally.

The principal advantage of this remarkable adaptation is that it allows certain rodents and insectivores to survive in northern latitudes, where and when their normal food sources have disappeared or become very scarce. While in deep hibernation, animals are exceptionally resistant to disease and infection. Their mental processes, though apparently suspended, are not impaired. Researchers have found that animals who have been taught prior to hibernation to solve lab problems, can, immediately upon being aroused, accurately remember what they learned.

The potential implications of hibernation for humans have long intrigued scientists. Ever since space travel became a realistic prospect, there has been speculation that something akin to hibernation might be advantageous for crewmen making long voyages through the heavens. A more immediate if less glamorous possibility is that periods of induced hibernation would benefit patients undergoing or recovering from certain types of medical treatment.

Hibernating animals can be artificially awakened by external stimuli—for example, simply by loud noises. Also, researchers monitoring animals in this condition find that they show signs of periodic natural arousal. They may not become fully active but metabolic processes speed up as they do prior to awakening. The consensus assumption is that this behavior occurs in response to the workings of the mysterious inner clock that regulates the activities of so many creatures. The "activity alarm" that, during the rest of the year, causes the animal to get up and go about its daily business still functions in hibernation, but it is muted and rings briefly and less often.

All of which is thought-provoking and a considerable scientific puzzle, but of course is much more complicated and has less dramatic zing than the traditional explanation: that woodchucks awaken on February 2 because they want to look at their shadows and appear on TV.

Adult marmot shares lupine flower with young. Related to the groundhog, the marmot is much more sociable.

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(5) ITT (6) HUGHES (7) TRW (8) WESTINGHOUSE

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Who supplied the video cameras, video equipment, and transmission services that sent back the stunning, live pictures from the Space Shuttle? Westinghouse? No, RCA.

Who developed and built AEGIS, the Navy's new seaborne electronic defense system? Again, the answer, RCA. In fact, the correct answer to each of the questions is the same. RCA.

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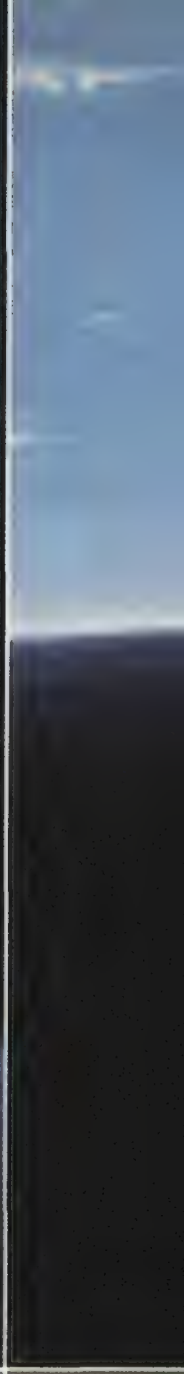
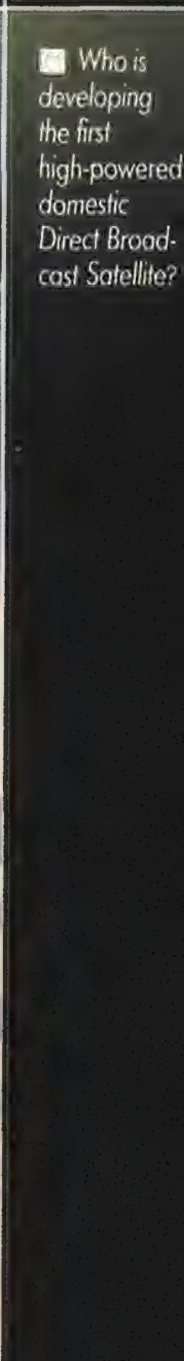
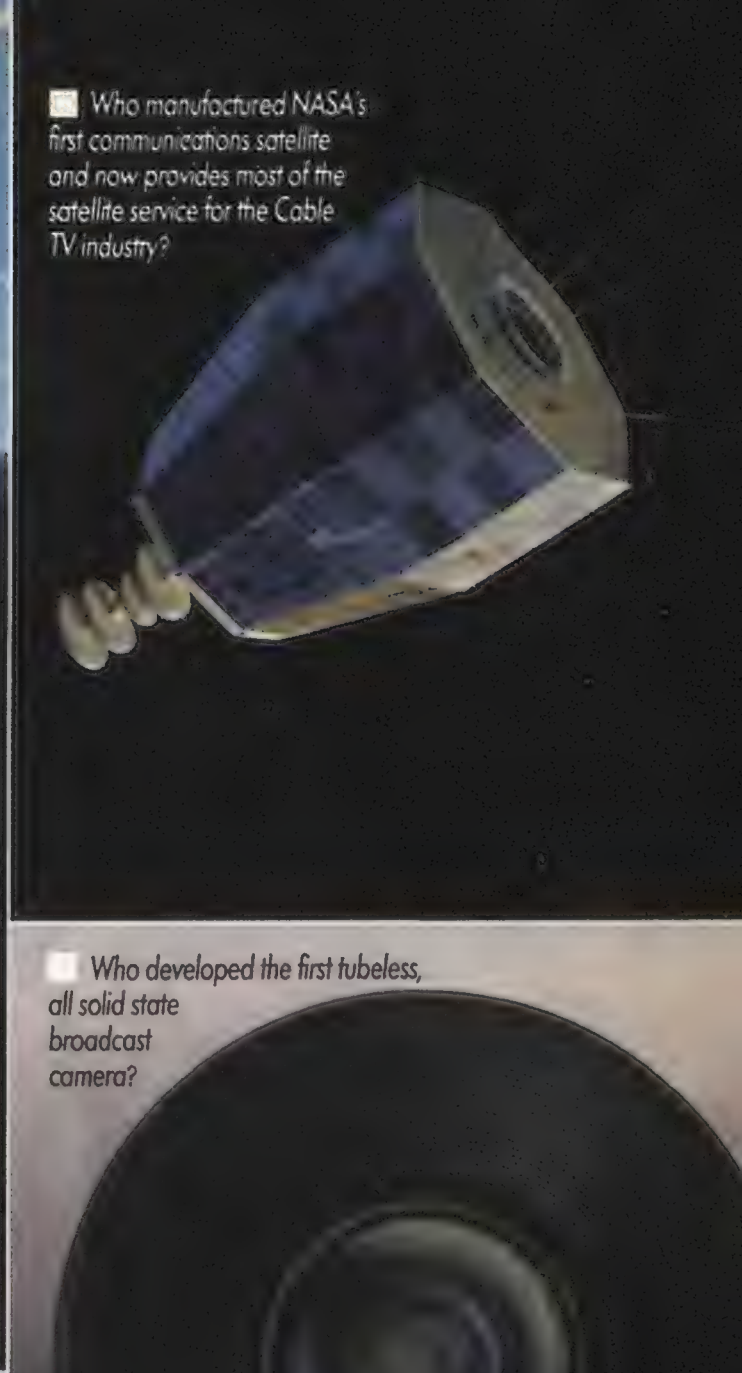


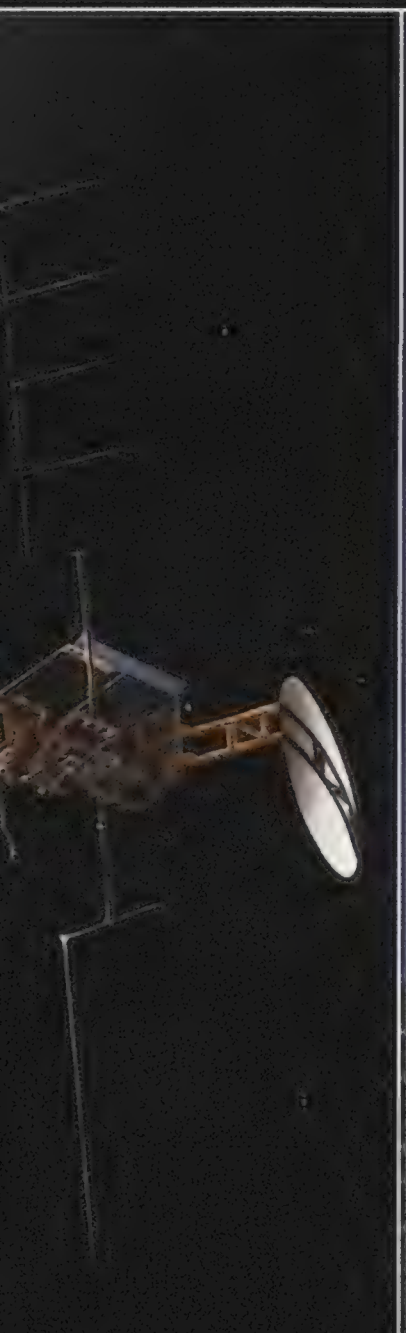


Who supplied the video cameras and video equipment for the Space Shuttle?

Who manufactured NASA's first communications satellite and now provides most of the satellite service for the Cable TV industry?



Who developed the first tubeless, all solid state broadcast camera?



Who developed and built AEGIS, the world's most sophisticated defense system, for the U.S. Navy?

Who conceived, developed and built all the operational polar-orbiting weather satellites in the free world?

By Edwards Park

The *Voyager*'s bid to girdle the globe is no mere canard

Dick Rutan and Jeana Yeager are gearing up for a nonstop flight around the world in one of the most unusual airplanes ever built

Mojave is a typical California highway town featuring one long street of truck stops and coffee shops, but it suits the Rutan brothers to a T. It has lots of wide-open spaces, plenty of good flying weather and an excellent local airport that is only a few miles from the mighty Edwards Air Force Base, one of the biggest flight test centers in the country.

Dick and Burt Rutan are in the aircraft business. Dick, the older of the two by five years, is a pilot. Burt, age 41, is a designer. Together they have developed at Mojave one of the most avant-garde flying machines ever to lift off a runway anywhere in the world. It's called the *Voyager* and chances are that you'll be hearing a lot about it later on this year.

The *Voyager* is one of a kind. Its wingspan nearly matches that of the Boeing 727 jetliner, but at about 1,800 pounds it weighs only a fraction as much. It is made out of composites, not aluminum. It does away with the conventional tail assembly; features a small wing, or canard, on its nose; and employs two reciprocating engines at either end of its short, sleek fuselage, which is bracketed by a pair of long, slim booms.

Just as Charles Lindbergh's plane, the *Spirit of St. Louis*, was designed and built specifically to fly across the Atlantic Ocean, the *Voyager* was conceived with a similarly audacious goal in mind—to fly around the world without once landing or refueling. The Rutans are not talking about taking a polar shortcut, either. Their intention is to circumnavigate the full 25,000-mile circumference of the globe.

In its public debut last summer, lightweight *Voyager* soared majestically through California's cloudless skies.

Back in the 1930s, the steadily improving capabilities of the airplane were demonstrated by a series of dramatic round-the-world flights. But Wiley Post, Howard Hughes and other endurance pioneers had to stop en route for refueling and maintenance checkups. The distance record for a nonstop flight without refueling was set in 1962 by an Air Force B-52, which flew from Okinawa to Madrid. Now, if Dick Rutan and his partner, Jeana Yeager, can complete their

Forward wing, or canard, provides some lift while engines push and pull plane along at 100 miles an hour.

staggering mission—which will require them to remain cooped up together in the *Voyager*'s tiny cockpit for nearly 12 days while they amble along at roughly 100 miles per hour—they will have pulled off one of the most marvelous stunts in modern times.

The *Voyager* project is more than a stunt, however. The early history of aviation was marked by a succession of rugged individualists—the Wright brothers, Glenn Curtiss, Igor Sikorsky—who dared to challenge the status quo, pushing design and construction into ever newer frontiers. The Rutans, their admirers say, are throwbacks to that iconoclastic tradition. They devoutly believe that conventional aircraft design is long overdue for a shake-up and the *Voyager* embodies their own particular vision of what the future holds—planes that are lighter, stronger, more efficient and more cost-effective.

The Rutans are known for their fierce indepen-

dence, which is nowhere more evident than in their administration of the *Voyager* project. The brothers are not backed by millions of dollars of private capital and federal funding. They are raising money themselves the old-fashioned way—by hustling for it. They do not have access to the vast technological resources of a major manufacturing plant. They have fabricated and are testing the *Voyager* with a skeleton crew in Mojave, much as an automobile enthusiast might build a racing car in his own garage. And the comparison does not end there. The Rutans are doing all this for sheer love of the challenge.

Burt, who made a name for himself designing small, sporty planes for pilots who like to fly for fun, has already had a significant impact on aircraft design. The *Voyager* incorporates most of the innovations that distinguish his earlier work—the composites construction, the unusual engine deployment, the canard wing. There's nothing new about a plane having a small wing in front. The Wright brothers used one and so do a number of planes in service today. But the Rutan canard is an unusually prominent feature, and it serves a twofold purpose. As a lifting surface, it helps hold the plane up, and it also serves to help prevent stalls. If a Rutan plane loses flying speed, the canard loses its lift before the main wing does. The plane then noses down and regains its speed.

When you glimpse Rutan's planes in the air, they seem at first to be flying backward, very fast. Some of their names—VariEze, Long-EZ—are as weird as their shapes. But once you get used to them, the machines are undeniably beautiful. Their creamy fiberglass skins cover alluring curves of rigid plastic foam, and you want to touch and stroke them.

Pilots Dick Rutan and Jeana Yeager squeeze into mock-up of the *Voyager*'s cockpit and living quarters.

Innovative designer Burt Rutan is known for sporty, small airplanes that look like they're flying backward.

For me, consummation came when Dick gave me a ride in a Long-EZ. I slid into the rear cockpit. On either side, the main wing swept gracefully out and back to end in upturned "winglets," another Rutan trademark. Ahead spread the little canard with its elevators; behind me, the Lycoming engine sang in my ears. Dick exchanged a few words with the control tower, and with a blast of power we seemed almost to snap into the air.

As soon as we wound up the nose wheel and gathered speed, flight sounds diminished. We shot upward, the canard lifting like hands in supplication, then wheeled and swung low over the strip. Dick let me take the wrist control, a little handle on the armrest beside my right hand. I moved my hand lightly to the left, and the little plane seemed to respond to my thought alone, banking as far as I asked. We did a couple of effortless barrel rolls, sped over the Mojave Desert and then Dick turned toward the airport. Power off, we swung steeply into the final approach, straightened, nose high, and felt for the ground. I heard the gentle squeak of our tires on the strip. Nothing to it. Even *I* could have landed that joyous little ship.

As the sons of a dentist in Dinuba, California, near Fresno, the Rutan boys built and flew model airplanes. Dick wouldn't let Burt mess with his, so Burt built his own, and they were better. Dick remembers a "carrier-

On record-flight attempt, the two will spend almost 12 days in this space, exchanging places every few hours.

landing" contest for models that fly around you in a circle while you control their altitude with light wire tethers. The idea was to fly your model at full speed, then land it on a raised platform, a "carrier deck," with cords stretched across it to play the role of airplane-arresting gear.

"Burt built a plane that looked like a contemporary Navy fighter," Dick recalls. "Then he worked out how to do a power stall with it. The thing would almost hover over the deck, tail down, engine full on, until he dropped it at exactly the right spot and engaged the arresting gear. He always won."

As teenagers, both boys learned to fly real planes. Burt, says his older brother, is still an excellent pilot but he has always dreamed of designing while Dick thought more in terms of flying. Dick joined the Air Force and flew 325 combat missions over Vietnam before being shot down by ground fire and rescued. Later, the restless ex-hero with a hawkish face and dark, beetling brows met Jeana Yeager, a gutsy little Texan (no relation to the test pilot Chuck Yeager) with wise and warm eyes. She grew up training horses, then took up skydiving, then fell for the Rutan planes and began busting speed records with them—including one that Dick had set.

Dick and Jeana decided to start a business producing an acrobatic plane for sport pilots but that scheme never matured. They searched their minds for a new step in aviation—a new record, perhaps. Out of that process, the *Voyager* was born. Brother Burt would design it, of course.

A pilot himself, Contributing Editor Edwards Park flew fighter planes during World War II.

As a student at what is now California Polytechnic State University, the younger Rutan designed his first canard-wing sports plane and called it the VariViggen. He tested the design by mounting an instrumented wind-tunnel model atop his car and driving fast along desert roads at night. He built the plane in a garage and took it to an experimental-aircraft show. It made such a hit that he started designing kits so enthusiasts could build their own simple little Rutan planes at home—the way he had done. That's how the Rutan Aircraft Factory got under way at Mojave.

By now, Burt has achieved fame even at NASA, for whom he designed a swing-winged plane several years ago. He's a pleasant man with a quirky sense of humor. He's taller than his brother but not as dark, and he sports long sideburns. He hates the process of patenting because patents "get in the way of something being used and provide money for lawyers." He feels lawyers have no rightful place in the kind of work he does. "If you know what you want to do," he has said, "and your customer knows what to expect from you, all you need is a handshake."

And so this reclusive, idealistic and contentious man works his special magic in two Mojave hangars and he works to the exclusion of nearly everything else. One of Burt's hangar-offices has an odd metal contraption on the receptionist's desk. It's a brass mousetrap. Inside, the hangar contains a racquetball court, a shower and a clothes washer-dryer so the staff can work overtime to meet deadlines on better mousetraps. One of Rutan's recent deadlines: the completion of the *Voyager*.

Buy a T-shirt, help a plane

The *Voyager* project started out with little money, and money remains their main problem. Dick and Jeana have set up a club—$100 per membership—of *Voyager* supporters. They sell *Voyager* gimmicks—a T-shirt for $10, a desk model of the plane for $200. A little money dribbles in, but they need a freshet to equip the plane for its epochal flight, which is tentatively scheduled for this fall.

Burt told me that the *Voyager*'s design and construction moved ahead quite quickly. He used a sandwich of plastic-reinforced fiber with honeycombed paper as the filling. The fiber is incredibly light. I have on my desk a small twist of paper containing a few black strands far finer than hair. It's called Magnamite Graphite Fiber. When I dropped a pinch of it from shoulder height, it took 14 seconds to reach the floor. A similar bit of very fine lint beat it down by nearly ten seconds. As far as I know you can't build an airplane out of lint. But the impregnated-fiber material used for

Voyager comes out much stronger than steel at about one-fifth the weight. Burt points out that filament-winding machines lay the graphite tow at a fraction of the expense of handcrafting it. If the aviation industry moved away from riveted aluminum toward airframes made of such composite materials, he says, costs could drop.

Jeana gave me permission to inspect the great plane at close range. Standing at a wing tip that was little more than a foot wide, I felt as though I was peering down a long, plastic ribbon toward the nearest boom. The wing tip was supported by a chair with a sandbag on it. Because the tips can flex up to nine feet in rough air, Jeana says, flying in the *Voyager* is like riding on the back of an eagle.

One of the *Voyager*'s two booms will contain the radar that will spot weather on the flight. Nearly every bit of space will be filled with fuel: the craft can hold about 1,500 gallons of it. The tiny cockpit has a ledge beside it and a crude bunk behind it for the off-duty pilot. It fits Jeana, but is a little snug for Dick.

One of the *Voyager*'s two engines pushes, the other pulls. Both will be used for the 7,000-foot takeoff from Edwards Air Force Base. Then, about a third of the way into the flight, with more than half the fuel gone, the tractor engine will be shut down and the pusher engine will do all of the work.

The plane will head southwest from Mojave, cross Hawaii and Australia, slide under the Cape of Good Hope, come up along the northeast coast of South America and head for home. To a generation raised on Earth orbits in spacecraft, that may seem like no big deal. But the *Voyager*, remember, will seldom fly above 15,000 feet, day after day after day.

The pilots are critical factors. They will start adjusting their biorhythms about a month before takeoff, forcing themselves into their in-flight routine of alternating shifts. The on-duty pilot will keep busy navigating, logging food and water consumption, and monitoring the fuel system every half hour or so. To maintain the plane's balance, the fuel must be evenly distributed among 15 different tanks and frequent transfers will be necessary. The pilot will also stay in close radio contact with the *Voyager* Mission Control Center to monitor the craft's exact position and be alerted to weather conditions ahead. The center will be set up in the Smithsonian's National Air and Space Museum on the Mall, which is only fitting, since the *Voyager* will almost certainly be enshrined there after completing its mission.

The off-duty crew member will sleep, perhaps read books or play games on a calculator, and keep a running log of activities, situations and personal reactions. Flight surgeons have also asked Dick and Jeana to document their physical condition both off and on duty.

Food is a problem. Dick once did a 33½-hour endurance flight during which he learned not to take food that tastes good. That means it will smell, and that will make you sick. "Bland is the answer," he told me. "Palatable, but not very good." The two are looking at foods the Army routinely tests and at the diet of mountain climbers.

The Air Force has given Jeana a course in sea survival in case she and Dick have to leave the plane. They'll be over water 95 percent of the flight, and must know how to dump their 'chutes amid the waves, to climb onto a raft, to patch its holes, to keep their spirits up. In a ditching, the *Voyager* could tear apart.

If the money comes in, if the equipment proves out and if the radar finds helpful weather systems en route, the *Voyager* and its crew will have the right stuff to pull off their miraculous flight. When the wind dropped at Mojave, I watched the plane and its two pilots start out on a test flight. The *Voyager* taxied carefully to the end of a runway, its lissome body twitching and writhing with every small bump on the tarmac, its great wings drooping. Dick poured on the coal, the two engines blended in a gentle hum and the wing tips rose, arching upward like the arms of a swan diver. By then it was off, and passed straight over me, the sound little more than a whisper, the sun gleaming on that smooth skin, the broad wings sweetly stable in the early morning air.

"How long will they stay up?" I asked one of the mechanics who was watching, too.

"Can't say for sure," he replied. "But they've only got enough fuel for two or three days."

Three other Rutan planes: VariViggen (top) is made of wood; VariEze (center) and Defiant are of composite.

N27MS
N78RA

Bringing baby home in the Peugeot

She has ten tiny fingers, around which she has already wrapped her grandparents. And ten tiny toes.

She has enough clothes to stock a small store, including eight pairs of little knitted bootees that will never stay on.

Her face goes scarlet with anger if there's any stalling at feeding time.

There is some agreement that she looks like her grandmother on her mother's side—although this notion does not sit well with the other side of the family.

Dad will get up and check her fourteen times during her first night at home, each time making a mental note to do something about the creak in the floorboard.

She has pudgy cheeks, fat little knees, and almost no hair.

She is, they agree, the most beautiful baby anyone ever had.

Oh, the responsibility of it all!

The 505 STI's seats are wrapped in a soft, supple leather, with the front pair heated in the winter. Comfort of body, indeed.

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PEUGEOT

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National Gallery, Prague

By Robert Wernick

Rousseau: the customs clerk who created a world of wonder

The Paris art establishment made gentle fun of his eccentricities, but his visions of Man and nature have been part of us ever since

They gave a banquet for the old man in Picasso's studio, and all the young Paris art world was there, Gertrude Stein and everybody else. They set him up on a chair perched on a packing case like a throne, and he sat there stoically while wax dripped on his head from a lantern. They toasted him and recited poems in his honor and cheered wildly while he played a waltz of his own composition on his violin. They hugged him and praised him and made fun of him while they drank the place dry. (Picasso, who was in charge of the food arrangements, had given the caterer the wrong date. The guests had to go out and forage for food.) When the lantern caught fire they told Henri Rousseau it had been planned as an ultimate tribute to his glory. As the party broke up in the far hours of the morning, he lurched up to the host. "Dear Picasso," he said, "we are the two greatest painters of our time—you in the Egyptian style and me in the modern style."

It was the kind of sublimely silly thing which dear old Henri Rousseau was supposed to say. When he didn't produce a phrase like that, his young friends were glad to make one up for him. Every one had stories to tell about him and no one was interested in historical exactitude. So most of the information that has been handed down about his life, both before and after that banquet of 1908, has been mythological. It has helped build up an image the world cherishes, of a sweet childlike old simpleton who happened to create beautiful pictures as artlessly as a bird trills its song.

A show opening this month at the Museum of Modern Art in New York, the most complete survey of his work ever brought together in one place (sponsored by the Paine Webber Group Inc. and the National Endowment for the Arts), makes clear that, whatever elements of truth there are in this picture, it is incomplete. Simple Rousseau certainly was, but he was no boob; he was a shrewd old bird at his moments, perfectly capable of pulling Picasso's or anyone else's leg. The Rousseau myth was largely of Rousseau's own making. It was he who got his admirers to tag him Douanier (customs inspector), though that was many grades up the bureaucratic ladder from the post he actually held. He was an "ambulatory clerk," just about the lowest rung of the ladder, in the *octroi*, a service which from the Middle Ages through World War I collected tolls on merchandise being brought through the gates of Paris.

It was Rousseau who provided his biographers with tales of his military service in Mexico, and it was not until many years after his death that research revealed he had never left France. Nor was there a word of truth in his story of how he had "saved the people of Dreux from the horrors of civil war" in 1870, and how they had carried him around town on their shoulders shouting "*Vive le sergent Rousseau!*" The pale light of history shows he never made it beyond the rank of private and that he wangled a release from the army at the start of the Franco-Prussian War.

Rousseau was the first of what has become a long line of artists called naive or primitive to be taken up by the intelligentsia and hailed as untutored geniuses. He differs from the others, like America's Grandma Moses—first, in his immeasurably greater native talent, and second, he did not work as they did, in lonely isolation. He lived in Paris at a time of unparalleled artistic ferment, when every few years or months saw the dawn of a new artistic revolution. He was acquainted with many of the revolutionaries, including such painters as

In *Myself, Portrait-Landscape,* Henri Rousseau portrayed himself—prophetically—as a towering figure.

The painter the world caught up with

Gauguin. Pissarro and Odilon Redon knew his work and admired it. Robert Delaunay was to write encouraging comments about his accomplishments. Picasso and Georges Braque came to the musicotheatrical receptions he gave in his studio. He was a well-known figure in the art world; the paintings he exhibited at the Salon des Indépendants attracted crowds of visitors and extensive comment in the press.

It is true that the crowds often came to laugh uproariously at his creations, and the press clippings which he pasted faithfully in a big scrapbook contained exercises in cruelty and contempt. "Monsieur Rousseau paints with his feet, with a blindfold over his eyes," said one critic. And another said that nothing could be more grotesque than Monsieur Rousseau's *Suicide* and his portraits, unless it was Monsieur van Gogh's *Starry Night.*

As biting as such words were, there was an even more savage physical demonstration of contempt and what must be described as hatred for the man's work. In 1885 when he first publicly showed his work at the official Salon des Champs-Elysées, and you can imagine what this meant to him, both of his paintings were slashed with knives, presumably by critics who couldn't get their opinions before the public in any other way. The paintings then were removed from the show and put in with other *refusés.* And this was how Rousseau was to begin his new life as an artist. There were newspaper stories about the slashings, and Rousseau, in his implacable manner, cut them out and pasted them in his scrapbook along with other items of interest.

Rousseau was aware that he could not talk to his fellow artists on their own terms, as he was wholly uninvolved in the artistic theories over which they were continually wrangling. He was very much a man of the people, with no formal training in art or anything else.

Philadelphia Museum of Art, Stern Collection

As evocative and poetic as many a Rococo fantasy, *A Carnival Evening* is an enchanted personal reverie.

He had been born in 1844 at Laval near Angers in western France. He followed various odd jobs, spent four years in the army (and a month in jail for having misappropriated 25 francs when he was working in an attorney's office) before he got the job that took him, 70 hours a week, in dark uniform and with a useless sword at his side, to the tollbooths of the *octroi.* He was in his thirties when he began to devote himself to painting, first on Sundays, then full-time when he gave up his job in 1893 and determined to live on his modest pension, plus what he could make giving music and art lessons to his neighbors in the Plaisance quarter of Paris.

The two wives that he dearly loved died. So did eight of his nine children. He found it hard to make ends meet. What kept him going was a solid, simple faith, not in Catholicism, which, with his Masonic beliefs, he despised, but in art and beauty and nature and progress, and the French Republic which allowed all these others to flower. Above all, he believed in the unique genius of Henri Rousseau. And this was strong

Robert Wernick has written on subjects as disparate as goats and pepper for SMITHSONIAN. *He wrote about Prince Eugene of Savoy in last month's issue.*

enough to allow him to disregard the wicked barbs of the critics and the clamor of the bailiffs demanding payment of his bills for paints and brushes.

He realized from the start that he was a painter different from other painters. He admired the fashionable Salon painters, men like Gérôme, Bouguereau, Clément, painters of high polish and fantastic skill in capturing the rippling surfaces of the world. But his vision was at odds with this traditional approach to painting. Although he had an exceptional sense of color and a sure eye for design, he abandoned the techniques that were the heart of 19th-century academic painting. He chose to ignore the devices developed since the Renaissance to establish visual accuracy in painting, including perspective and the use of light and shade to simulate a third dimension. If he put several figures in a canvas, he distorted their scale, much as Picasso would do later. He saw no need to set the feet of his humans or the bases of his trees firmly on the ground, and he occasionally covered feet and roots with a band of green grass. He could draw a figure in profile, or staring straight at the viewer, and give it an impressive hieratic monumentality. But when he drew a figure in motion—a jaguar attacking a native, a tiger attacking a buffalo, a gorilla attacking an Indian (it would take later scholars to point out that gorillas and Indians do not live on the same continent)—he would often turn to an illustrated brochure of wild beasts put out by the Galeries Lafayette department store and sometimes copy them with the aid of a mechanical device called a pantograph.

Perhaps he could have learned these techniques. He had, after all, won a prize for drawing when he was a schoolboy. As a copyist in the Louvre he learned how to do creditable imitations of clouds by 17th-century painters, and he scattered them through his skies. The preliminary versions of landscapes that have survived show that when he was outdoors looking at nature he could turn out very accomplished impressionist sketches. But when it came to painting the final version, another hand—on one occasion he said it was the hand of his deceased first wife—seemed to take over.

Private Collection

Rousseau took ideas from many sources; *Flamingos* may derive from a 17th-century Dutch painter.

The painter the world caught up with

Kunstmuseum Basel, Öffentliche Kunstsammlung

The Muse Inspiring the Poet is a portrait of painter Marie Laurencin and poet Guillaume Apollinaire.

Musée de l'Orangerie, Paris

Neighbor Claude Junier (holding reins) and family are subjects of a puzzling picture, *Old Junier's Cart.*

The forms stiffened, shapes swelled or shrank or skidded across the surface to assume the pattern of awkward inevitability which is the hallmark of all Rousseau's work. The paintings became primitive—primitive in the way the word was understood in the late 19th century, meaning the style of painting before the Renaissance, before the discovery of perspective and other illusionistic techniques.

The authors of the catalog for the MOMA show suggest that this primitivism was a conscious strategy on Rousseau's part. "If I have kept my naiveté," he wrote in a letter, "it is because Monsieur Gérôme as well as Monsieur Clément always told me to keep it."

If they really gave him this advice, he was wise to follow it. He could never have painted like Gérôme and Clément because he did not see the same things they did. While they were content to reproduce what

Rousseau may have portrayed himself in figure at right—and portrayed Junier with Rousseau's features.

was under their noses, the things Rousseau saw were rearranged and transformed in his mind into intensely personal visions which he then transferred to canvas with a directness, a freshness, a "lyrical exaltation" as one of his Italian admirers put it, that rarely fails to arouse enthusiastic admiration or ribald laughter—sometimes the two together—from his bemused and delighted spectators.

He transferred these visions as literally as he could—that is why he could refer to himself quite seriously as "one of the leading realistic painters of the day." When the creative sap was running strong, he could be so sure of his final effect that he would put his colors in one at a time—first green, then red, then blue. He often painted his backgrounds first, leaving spaces for the figures. When his friend the American painter Max Weber asked him if he wasn't leaving too much space for the dog in one painting, he replied, "No, that is the way it has to be."

When he looked at himself in his mind's eye, what he saw was not a seedy old man with a drooping white mustache but a noble figure with a black bushy beard and great floppy artist's beret, a decoration in his buttonhole which had really been given to another painter named Rousseau but which the Douanier assumed was intended for him, holding a paintbrush like a sword of justice and a palette inscribed with the names of his two wives. There was no need to anchor this figure's feet to the ground, so there was no protective band of grass; the artist seems ready to float upward toward the balloon in a sky filled with beret-shaped clouds—a giant looming over the Eiffel Tower and all Paris and a couple of Lilliputian strollers on the quay. Most artists of that day regarded the Eiffel Tower as an abomination, but Rousseau in his grand simple way took it as a triumphant symbol of that modern style of which he himself was the leading representative.

A great poet needs a big Muse

When he was doing the portrait of Guillaume Apollinaire for *The Muse Inspiring the Poet* (opposite), he used to hold a tape measure up to the poet's face to make sure to get the right measurements between mouth, eyes, chin and so on. For all that, the result was at many removes from a photographic likeness (although Apollinaire insisted that everyone recognized him when the picture was exhibited). When it came to the Muse—Apollinaire's mistress, the painter Marie Laurencin—all thought of likeness must have been abandoned early on. Marie Laurencin was proud of her figure, sylphlike as any of the charmingly decadent girls whose portraits made her reputation. When she saw herself bloated up to the size of a Wagnerian Valkyrie, holding up an impossibly long arm in the gesture of a priestess invoking prehistoric gods, she was indignant. Rousseau brushed off her complaints: "Apollinaire is a great poet, so he needs a big Muse!"

Ambroise Vollard, the prominent Parisian art dealer, asked him once how he got the effect of air circulating between the plants in one of his jungle paintings. "By the observation of nature," he replied simply. He loved nature, he used to spend hours sketching trees and meadows and flowers. But nature took a curiously crooked path getting onto his canvases. A young writer named Yann le Pichon was taking music lessons from the Douanier's granddaughter in Cherbourg. One day she showed him an album of engravings of wild animals, published by the Galeries Lafayette, and he was amazed to find jaguars and tigers and spoonbills which were perfectly familiar to him because he had seen them in her grandfather's paintings. His sub-

Overleaf: *The Dream*

Museum of Modern Art, New York

Philadelphia Museum of Art, Arensberg Collection

Locked into the botanical extravaganza he called *The Merry Jesters* is a welter of symbolic figures that remain inexplicable to this day. Although the title is lighthearted, the painting itself is unsettling.

Musée d'Orsay (Galerie du Jeu de Paume), Paris

"War (terrifying, she passes by, leaving behind on all sides despair, tears, and ruin)," wrote Rousseau. *War*, his first large painting (44⅞ x 76¾ inches), was first shown in 1894 and was then lost for 50 years.

sequent investigations turned up a treasure trove of 19th-century illustrations which Rousseau had employed as a visual repository for subject matter in his canvases: postcards, advertisements, magazine illustrations, almanacs, photographs, reproductions of paintings by famous artists. He rarely took over any one of these resources by itself. His imagination preferred to fuse them together, no matter how wildly incongruous they might seem to the prosaic eye, and freeze them in a trancelike state which can exercise a hypnotic effect.

This is the way he painted when he began, and he never varied in any significant way. In one of his earliest known paintings, *A Carnival Evening* (p. 82), which was shown at the Salon des Indépendants in 1886, the clown may reflect the influence of Watteau, the clown's girlfriend perhaps was taken from an advertisement for chocolates, the lacy tangle of branches in the trees possibly echoes a postcard photograph of the Bois de Boulogne. They all fit together in a moony atmosphere which is the Douanier's own.

In his last painting, *The Dream* (pp. 86-87), finished the spring before he went to the hospital to die in 1910, the nude on the couch may have been inspired partially by Félix Vallotton's painting, which had hung next to one of Rousseau's own in 1905. The couch came from the artist's studio. He drew on illustrated natural history sources for the lions and birds and monkeys, the snake and the elephant. Rousseau used to spend whole days soaking up tropical atmosphere in the hothouses at the Jardin des Plantes, but the spiky leaves and monstrous flowers of this painting are derived from plates in encyclopedias or botanical books.

Yet he was never the prisoner of his sources. He reserved the right to modify or transform them at any time to fit them into his formal or emotional design. The huge picture *War* (above), which hung at the Indépendants in 1894, may derive its conception from a drawing advertising a novel called *Le Tsar*. But the bearded Russian rider of the original has been turned into a demented figure in a white robe, riding sidesaddle on a crazed black horse, brandishing a sword and a torch that streams black smoke. The figures may have come out of classical sculpture, the horse is perhaps copied from a painting by Géricault, except that its head has been flattened until it looks more like a reptile's. The naked bird-pecked corpses on the battlefield below may have their source in memories of the 14th-century tapestries of the Apocalypse, which he would have seen in the cathedral at Angers when he was a child. The blighted landscape, the broken trees, the sulfurous reds and blacks, came out of the artist's imagination. All together, they form an extraordinary

whole, partly ludicrous, partly terrifying, as vivid an emblem as has been devised of the folly of war. Gauguin once commented that no one had ever used black as effectively as Rousseau—the merit of his opinion is clear when one looks at the flying tail of the death horse and the flying tail of the rider.

Many other of the great names of modern art—Degas, Pissarro, Renoir, Toulouse-Lautrec, Picasso, Robert Delaunay, Kandinsky—expressed approval or admiration. Yet it cannot be said that Rousseau ever achieved the recognition in his lifetime he would have liked. No crowds ever carried him through the streets shouting "*Vive le sergent Rousseau!*" Most of the shopkeepers to whom he gave paintings to cover unpaid bills rolled them up in their attics and sold them to junk dealers when they cleaned out their houses. When dealer Wilhelm Uhde put on the only one-man show Rousseau was ever to have in his lifetime, not a single person came, because Uhde had forgotten to put the address on the invitation.

But there was also Picasso, who might joke about many things and cast a sardonic eye at society at large, but who always took art seriously. To his acute eye Rousseau was an artist. As told by Roger Shattuck in *The Banquet Years*, Picasso wrote that "Rousseau is not an accident. He represents the perfection of a certain order of thought. The first of the Douanier's works that I had the opportunity of acquiring took hold of me with the force of obsession. I was going along the rue des Martyrs. A bric-a-brac dealer had piled up some canvases outside his shop. A portrait head protruded from the pile, the face of a woman wearing a stony look, with French penetration and decisiveness and clarity. The canvas was immense. I asked the price. 'Five francs,' the man said. 'You can paint on the back.' It is one of the most truthful of all French psychological portraits."

He was getting a good income from sales toward the end, in addition to a modest pension and fees for lessons, but he was always broke, or said he was. He was always ready to aid a needy neighbor, and he squandered considerable sums buying gifts for Léonie, "a coarse dirty shopgirl" said his friends, in his vain efforts to persuade her to become his third wife. He received a thousand francs from a friend who sent him fake identity papers and a forged draft to withdraw 21,000 francs from a bank. He spent a month in jail, but got off when his lawyer passed around reproductions of his works to the jury and convinced them of his defendant's hopeless naiveté. Perhaps Rousseau didn't know what he was doing; but one story has it that he invested his thousand francs thriftily and sensibly enough in a government bond.

In 1910, during summer vacation when nearly everyone was out of town, he neglected a scratch on his leg. It became infected and finally gangrenous, and he died miserably in a hospital, attended by only a few friends, and fretting because his young friend Delaunay, following one of the latest art theories, was breaking up the Eiffel Tower on his canvases. A careless clerk in the hospital marked him down as an alcoholic, and he was buried in a pauper's grave.

His faith in himself, unmoved by ridicule or neglect, had remained solid to the end. Hold on to the paintings I have given you, he told his grandchild, "they will be worth a hundred thousand francs."

He was much too modest a prophet. These days when a Rousseau is fished out of an old attic, it sells for millions and ends up in the Louvre. Generations of painters have revered him as one of the pioneers of modern art. The public has learned to take in its stride the distortions, the bizarre scale, the childlike fixity of vision, the arbitrary colors which used to move the viewers at the Indépendants to laughter and now have become the commonplaces of painting. People have learned to respond directly to the Douanier's directness. "I like to make my paintings smile," he said, and art lovers tired of the intellectuality and solemnity of much 20th-century art enjoy smiling back. More people, one thinks, have stopped to look at Rousseau's *Sleeping Gypsy* in MOMA than at Picasso's *Guernica*, now in Madrid. Maybe the old man was right after all. For the newer generations, Picasso is already receding into a classical, you might say an Egyptian, past. Henri Rousseau keeps his freshness. He is both up-to-date and timeless, a genuine Old Master of what we call the modern style.

Catch as catch can: late work, *The Football Players*, shows a game only Rousseau could have dreamed up.

Solomon R. Guggenheim Museum, New York

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By Carol Simons

Where the trees are bundled up like pampered pets

Whether palm or pine, it's the good life in Japan; there almost anything that sprouts will get treated with tender loving care

The Japanese garden is a subtle partnership between nature and Man. The gardener creates an artificial landscape of heightened intensity so that nature's work can be revealed at its best. To achieve this, he chooses the perfect rock and places it by a path, plants irises by a stream to create a "wild" look, spreads pebbles in soothing waves or sweeps yesterday's cherry blossoms up from the ground so that the newly fallen blossoms can be seen.

But the most dramatic, and most visible, work of the Japanese gardener strikes the eye in winter. For it is then, when snow blankets the west country, that the majestically pruned pines have their limbs supported by golden spiderwebs of ropes, fragile flowering bushes are sheltered in straw huts, and palms and other tender breeds are wrapped from head to toe in custom-made coats and hats of rice straw, leaving them in contrast against the snow like so many scarecrows.

Nowhere in Japan are trees more artfully prepared for winter than in the old castle town of Kanazawa. Here, beside the Sea of Japan, the wet and heavy snow puts a great strain on the foliage. Throughout the city —along its narrow streets with their mud-walled samurai houses, in its modern subdivisions or flanking its highways—Kanazawa's greenery can be seen tied up, splinted, wrapped in straw and, where economy is more important than esthetics, supported by pink plastic clothesline.

Clothed in their straw blankets *wara-maki* style, cycads in Tokyo await winter's chill winds with impunity.

The work of the masters, however, is on view at Kenrokuen, a landscape garden that was created during almost two centuries of the samurai era, from 1676 to 1822. Opened to the public in 1871, it is considered one of the three most beautiful landscape gardens in Japan, along with Kairakuen in Mito and Korakuen in Okayama.

Kenrokuen is splendid in any season, but in winter it takes on its most startling appearance because so many of its 11,700 trees and shrubs literally require support to survive.

Most spectacular is the 160-year-old Karasaki Pine, its dark, gnarled branches stretching almost the length of a basketball court above the icy water of Misty Lake (pp. 100-101). "The pine is the king of trees," says Kenrokuen's head gardener, Isao Okamoto. "Its shape is always changing—one trunk branches and forms many trunks." As the favored tree, the pine receives special attention. While it is true that the "courage" of such trees is admirable, says Okamoto, so is the artificial treatment that "adds to a pine's length and balance."

Since its youth, the Karasaki (a Japanese black pine) has undergone extensive surgical treatment, having its branches shortened, taped, supported by splints and bent in uniquely Japanese style until it achieved the look that was sought by its caretakers. This look was no accident.

"The 13th Lord Maeda, Nariyasu, completed this garden and planted this tree," explained Okamoto. "He had been given a seed from the Karasaki area near Lake Biwa, and he wanted this tree to imitate the beautiful scenery there. Even today, in that area, there is a beautiful pine tree like this, only smaller."

The Karasaki has its own imitators, three substitutes awaiting the possibility of havoc wreaked by typhoons and harsh winters, each about 20 to 30 years old, each being pruned as a copy.

Preparing ropes for the "snow guard"

Surveying the gnarled old Karasaki, its dark hulk dramatically etched across a gray evening sky, Okamoto says that he and his fellow gardeners "would feel very guilty if something happened to this tree during the winter."

With its broad clumps of needles, the Karasaki Pine is particularly vulnerable to snow. So, every October the workers at Kenrokuen prepare the ropes for the "snow guard" (*yuki-zuri*) that protects the trees of the park. The *yuki-zuri* for the Karasaki Pine consists of five golden "umbrellas" formed by about 800 ropes, which hang from the tops of support poles.

Photographs by Greg Davis

Pampering the tree in Japan

To allow space for growing pine, rural family moved its farmhouse (background) three times in 250 years.

Simple teepee in a Tokyo garden, made by forming straw into a mat, protects peony plant from the wind.

Okamoto traces the techniques of *yuki-zuri* back to the Edo period (1603-1867) but says that its exact origin is unknown. Although its purpose is protection from snow and wind, the art also has come to symbolize the winter season; the Japanese even apply *yuki-zuri* to bonsai pine trees kept indoors.

The technique of tying up a pine is precise. Thick twisted straw ropes are used on most of the tree. To support branches extending over the pond, thinner ropes are employed because, Okamoto explains, "we seek gentleness and softness over water."

Fifty gardeners work on Kenrokuen's pines from October through mid-December. First they drive support poles into the ground. Then they prepare the ropes in clumps, knotting them together at one end. After attaching the knotted clumps to the tops of the support poles, they climb into the trees to tie the other ends to the branches.

High above the tree, clinging to the center support pole, a single man opens up the clumps—100 to 200 ropes—and swings them three or four at a time, like lassos, to the men on the branches below. The more experienced the man at the top, the larger his circle.

Some trees have more than one support pole; the

Its branches rest on carefully laid stone and wood supports (right); annual upkeep cost exceeds $2,000.

Karasaki has five, and its neighboring pine has two, creating a striking vista of rope umbrellas. Some pines have no support poles; the ropes fall directly from the top of the tree trunk itself, in a style called *miki-zuri*. Whatever the pattern, proper distribution of the ropes is essential, and apprentices spend hours on the ground practicing their throws.

Okamoto directs the work, which he learned on the job during his 35 years at Kenrokuen. This year, at 60, he'll no longer take his accustomed position at the top of the tree.

"I started feeling a little shaky, especially on a windy day," he says, explaining that in his youth he had managed to convince himself that "being on top was safer than being on the branches and ladders because at least the support pole wouldn't break." With a laugh he adds, "You know the old Japanese saying that the fool and the gardener climb to the highest places."

As the evening sky continues to darken and the falling snow muffles the sounds of the surrounding city, Okamoto slowly walks along the winding paths, shining his flashlight on some of the park's shyer shrubs with their own less imposing, but no less important, winter supports.

He patiently points out various broadleaf evergreens, azaleas and bush clover, tied up in "twisted" style, with their branches gathered into a vaselike shape. Some of them are also braced by *takemata*—a "bamboo fork" of three or four vertical poles. When this technique is used to support a group of shrubs, the final step is to tie the obi, or kimono sash. In the garden, this is a bamboo belt connecting several shrubs and fixed about a foot from the ground.

Our little tour circles Kenrokuen and winds up in front of Seisonkaku Villa, built by the 13th Lord in 1863 for his mother. Within its red gate, which identifies it as the residence of a high-ranking woman, stands a collection of small and very special trees that will flower in the warmer weather. Several of them hide from the snow under straw teepees, a protection known as *komo-maki*, "straw-mat wrapping."

Even a few of the gray stone lanterns in the villa's garden are painstakingly swathed in straw so that ice won't form in the crevices and cause the stone to crack.

Carol Simons is a former Associate Editor of SMITHSONIAN *who lives in Tokyo. She wrote about Japanese fake food in the March 1984 issue.*

Pampering the tree in Japan

Lew Simons

Masataka Kato, whose firm does gardening work for the Tokyo government, wraps a young tree with straw.

Some of them have tiny, diamond-shaped windows cut into the straw, even though the lanterns are now purely decorative and not lit.

At Kenrokuen, executing such details means big business, and an annual budget of $1.2 million—half from taxes and half from admission charges. The park's monthly schedule specifies everything from checking bridges in December so tourists won't slip on the ice, shaking the snow from branches in January and February and untying *yuki-zuri* in March, to spraying for insects in July and watering twice a day during August.

About 140 miles east of Kanazawa, closer to the Pacific, an old farming family independently tends to a spreading mammoth pine tree (pp. 96-97). Theirs is called the Hagiwara no Daikasamatsu, or Hagiwara's gigantic hat-shaped pine tree. Because the snows on the Pacific side of Japan aren't heavy, the Hagiwara pine doesn't have a golden *yuki-zuri*. But its history illustrates the Japanese penchant for protecting trees.

The Hagiwara pine, resting on an intricate infrastructure of stone and wooden supports, sprawls in front of Ryogi Yagi's wooden farmhouse. The family raises rice, a few cows and 120,000 silkworm cocoons every year. Mr. and Mrs. Yagi consider the possibly 450-year-old pine "a treasure and a responsibility," underscored by the fact that they spend nearly $2,000 a year to maintain it, plus a contribution of approximately $200 from the local Takasaki City Educational Committee.

The tree started bumping the house

The family seems to have been ruled by the tree for centuries. According to Yagi, it was presented to his family more than 250 years ago by a local feudal lord. At that time the tree was a bonsai of unknown age, a miniature specimen in a pot.

"The tree was planted in the yard," says Yagi, "and it kept growing, growing, growing, until it started bumping into the house. Soon they couldn't open the door, so the house was moved. A hundred years later, the house was moved again. The one we live in now is 70 years old, the third house by the tree."

Choju Shibata, a professional gardener of "around 75," lives nearby and has been taking care of the tree for 20 years. Originally, the tree was pruned in the shape of a giant hat, or mushroom, and was so thick that people could walk across its crown. But in true Japanese tradition, gardener Shibata has been slowly trimming it to "a better shape, something more graceful," so that now it crawls over the grassy land, 67 feet at its widest point.

The pine is so popular that tourists come by the busload to see it. Outdoor toilets had to be built to

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keep them from wandering into the family's rice and vegetable fields. Yet despite the expense and effort, the Yagis agree on their "obligation" to care for the old tree. "There's a legend that a pine tree can last 1,000 years," says Yagi, "but maybe it's only a legend."

The obligation to maintain and preserve trees is not just the notion of a few, but is accepted officially by the national and local governments. Many city trees get the same special attention of those in prized gardens and parks. Basically, says Takashi Hatano, a young horticulturist for one of Tokyo's central wards, government policy is that "if a tree is alive, save it."

On many of Tokyo's streets, the trees are pruned in such a way as to look stunted. This, explains Hatano, is because the soil is so poor that the treetops must be kept light. Also, if the trees were allowed to spread, too many leaves would fall in the road.

Because there is not much snow in Tokyo, Hatano continues, most of the winter protection of trees is done more for effect than need. People want to "feel" the winter, so certain trees are wrapped in straw or tied up in *yuki-zuri* style to create a wintry mood.

One particular favorite is a winter protection known as *wara-tate* or *wara-boshi*. These little straw huts were originally designed to shelter small bushes such as the peony or rose, but now are used to add a charming and artistic flavor to the otherwise bare winter garden. Another peony shelter is a straw teepee covering (p. 96).

Commonly seen along most Tokyo streets are young and newly transplanted trees covered in straw simply to protect them from the harsh realities of life—cold or frost or too much sun in summer.

Shimizu Construction Company is one of the firms hired by the Tokyo city government to do such specialized gardening work. One fall day, as the winds whipped through Kyu-Shiba Rikyu Garden just behind Hamamatsucho train station, Masataka Kato, 49, and Hiroshige Uchiyama, 24, covered a young tree with a coat of rice straw (p. 98).

Such straw, they say, is becoming increasingly difficult to obtain because mechanized farm implements cut the stalks too short. Sometimes cloth "bandages" are employed, similar to the burlap that is often used as a tree protection in the United States. But to Japanese eyes, cloth does not have the esthetic appeal of rice straw. Also, says Kato, "you can work with straw more precisely around the trunk and especially around the parts where the limbs branch off."

At Kenrokuen garden in Kanazawa, rope umbrellas support snow-laden branches of two huge pine trees.

Kato has been wrapping trees for 30 years and learned the technique on the job. His younger colleague is a college graduate in landscape gardening. For their work at Kyu-Shiba Rikyu, they wear traditional split-toed shoes, cotton trousers, navy blue jackets emblazoned with the company's name, and green helmets.

They start from the ground up, packing the straw around the trunk of the small tree and tying it in place with cord that is dyed black to contrast with the golden straw. When they reach the desired height, leaving branches protruding from the ragged straw like skinny wrists poking out of an old sweater, they reverse direction. Once the layers are in place and tied, Kato snips the edges to make even cuffs, then patiently snips pieces of straw that are sticking out so the tree is swathed in a smooth coat. Silhouetted against a modern skyscraper, also built by the construction company, the encased young tree looks like a living work of art.

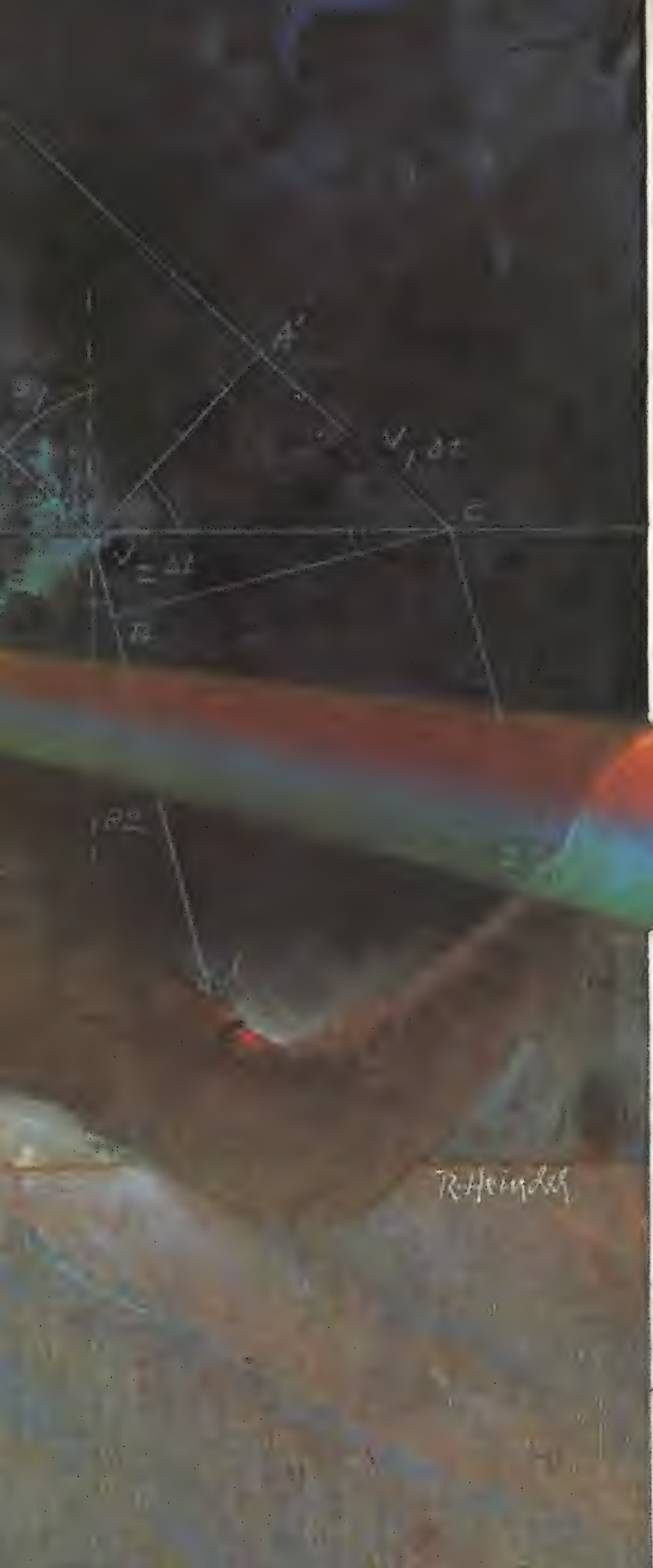
Kyu-Shiba Rikyu had, too, a large number of pines dressed in another characteristic form of protection—straw "girdles." Masaaki Hiratsuki, 33, Shimizu's construction-site manager, explains that the gardeners use these girdles to attract insects that would otherwise hide in the pine's crevices to escape the winter cold. The girdle is put on at the end of October and taken off in March and burned, insects and all.

Tokyo also has its share of trees that are covered entirely in straw coats, plus top hats (p. 94). These are the windmill palms or cycads, protected by *wara-maki*, or straw wrapping, a technique that never fails to capture the imagination of foreign visitors, who wonder why technological Japan still has so many scarecrows, voodoo dolls and other primitive statues prominently placed in its front gardens.

Hachiro Koyama has one of these "primitives" in front of his house in Yokohama. The tree, a cycad, was given to him 15 years ago when he became president of Johnson Wax in Japan. Transplanted from Okino Erabu Island, south of Kyushu, the tree is supposedly 200 years old, he says. The Koyamas spend about $200 a year to care for the cycad. Gardeners wrap it in early winter and unwrap it in April. The old dried leaves are trimmed off and the green fronds left to soak up the warm sun.

"They say it's bad luck if an evergreen dies while in your care," says Koyama. "I have this feeling that this tree is good for longevity and prosperity, and we can't afford to let it die."

The four umbrellas visible at left are holding the venerable Karasaki Pine, which is 160 years old.



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By Patrick Breslin

Ireland's shanachies are gone now, but their legends live on

A rich cultural legacy has been preserved by a team of folklore collectors who began interviewing Irish storytellers 50 years ago

In the summer of 1951, when I was 11, I accompanied my parents on their first trip back to Ireland since they emigrated to New York in the 1920s. Both of them were born around the century's turn on the northwest coast, in Donegal. Their parish, Cloughaneely, consisted of two small towns and a few islands. To the south, a belt of bog slanted up to the somber slopes of the Derryveagh mountains. North, the Atlantic fretted and foamed behind a wall of dunes and a wide strand that glittered in the midmorning sun.

Cloughaneely, on the surface, was little changed since my parents had left. Its whitewashed cottages were still scattered like geese across the green hills and stony fields. Electricity had not yet reached beyond the towns. Cars were few; television was only a rumor. Each night, young and old gathered by the score under an elm tree at the corner of my grandfather's house. The men's cigarette ends glowed in the dusk. A girl's high laughter trilled above the murmur of the Irish tongue. In the level pasture in front, boys harried a soccer ball through the gloaming, and hunched cyclists whispered down the road.

On one such night, my father took me to see Neil Duffy, the shanachie (pronounced shawn-a-kee) or local storyteller. I recall an old man, white-haired and stiff-jointed, who searched me with a stern glance. In all that summer's confusion of myriad uncles, aunts and cousins, of visits to similar cramped cottages, I'd understood somehow that this was a special occasion, that respect was being paid. I knew just enough Irish to shake my head in shame when Duffy asked me if I spoke it. Then I sat in silence, staring into the turf fire's lambent core as the talk bubbled around me.

There were others there that night, though I remember them only as dark shapes in the room, flickering shadows when they crossed before the hearth. Only my father, quiet, attentive as an acolyte, is sharp in memory, and Neil Duffy, leaning back against the pillows and talking slowly. He might have been speaking of the high kings or the heroes of the Finn cycle, of St. Patrick's miracles or the doings of the fairies. All the millennia of Ireland were within his ken.

Once, every townland had shanachies like Neil Duffy. Down through the centuries, they had received the rich Irish oral tradition—the body of myths and history, folk- and fairy tales, the knowledge of herbs, of medicine, ways of caring for animals or predicting the weather, the poems, prayers and superstitions—and passed it on, gleaming like family silver. By 1951, though, the ages-old procession had faltered. Neil Duffy was old and dying, as was his generation. And rural Ireland was changing.

Ex-fisherman Sean Haughey has spent the best part of a lifetime casting his nets for ancient Irish tales.

A poignant photograph at summer's end

There was a photograph my mother took at summer's end, the morning we left. Almost the entire population of the townland had turned out to see us off. She coaxed everyone into the field in front of my grandfather's house and somehow crammed them all into a snapshot—the men in their dark suits and suspenders, caps tugged low on their foreheads; the women in black sweaters and blue-gray aprons, black boots laced above the ankle. Over the next few years, tissue-thin airmail envelopes from Ireland brought news of death following on the heels of death, decimating the ranks that had posed so shyly for my mother on that glistening August day.

Neil Duffy was one of the first to go. I remember my father shaking his head dully, and I sensed then that something ancient and irretrievable had passed. Only decades later did I learn how much had been saved.

Not long ago, I stood in the archives of the Department of Irish Folklore at University College Dublin, running my fingers over the thousands of pages of neat Irish script where Neil Duffy's stories are preserved. On the walls around me were more than 2,100 other volumes containing a million and a half pages.

The still-growing trove of folklore is almost unimaginably rich in its scope and variety. Bo Almqvist,

Illustrations by Jim Spanfeller

In one Irish myth, a monster locked his daughter in a tower and killed the warrior who seduced her there.

chairman of the department, told me that in his native Sweden 25 versions of the tale of Cinderella have been collected. "Here," he said, pointing to the ranks of bound volumes, "we have counted 311 so far. So it is with other tales. Often as many versions have been collected in Ireland as in the rest of the world put together."

The Folklore Department has been the guardian of this national treasure since 1971, when it took over the work of the Irish Folklore Commission. The history of folklore collecting in Ireland actually goes back to the early 19th century, when travelers and independent scholars began the search for stories. But only with the government's creation of the commission 50 years ago was the task approached systematically. In 1935, the commission recruited a handful of eager young men, equipped them with bulky Ediphone recording equipment, and sent them out into the western countryside where the Irish language still survived despite long centuries of English domination. There, in glens tucked among gray mountains, on edges of squelching bogs or on bleak islands where fishing people lived much of the year battened down against the sea's gales, the new recruits went to work.

Unlike the earlier collectors, who were of a different social class from the peasants they sought to question, the commission's people were drawn from the communities themselves. None of them had a university degree but all were imbued with a deep respect for their country's oral culture—and the men who transmitted it.

In Donegal, the gleaning of the shanachies' lore was almost entirely the doing of one man, Sean Haughey. Soon after his recent retirement, I visited Haughey at his home in the town of Gortahork, scarcely a mile from my grandfather's house. He is more than 70 now, his thick hair and bushy eyebrows white as blown snow. He dresses in dark suits, sweaters, and always wears a tie. His blue eyes are friendly and curious and his glasses give him the look of a scholar, but his face has been roughened by the Donegal winds and his hands are strong and blunt.

When he was hired as the Folklore Commission's first collector, Haughey was a fisherman, sailing out of his native port of Teelin in south Donegal. More than once, that background helped him gain the trust of cautious shanachies. One of his first interviews, for example, was with a reticent old fisherman on Gola Island, off Donegal's western coast. The man was repairing a herring net and he barely responded to Haughey's questions about folklore. Then, when he

got up to light his pipe with a coal from the fireplace, Haughey spread the net over his own knees and took up the needle himself. "I could see him standing by the fire and watching me out of the side of his eye and holding the coal there above his pipe," Haughey says. "Well, when he saw that I wasn't just another white-collar civil servant, he began to talk to me. I worked three months straight with him after that."

For 48 years, Haughey tramped Donegal's mountains, islands and fishing villages. For many of the 1,500 shanachies he interviewed, Haughey was the last man to sit at their turf fires and learn from their lips. In a sense, he himself is now one of the last shanachies, standing at the end of an ancient tradition. "Men like Neil Duffy could listen to a tale once and repeat it word for word," he says. "You don't find that anymore. People now have lost their memories."

At a time when the Irish society was largely illiterate, isolated from the outside world and lacking modern communications, people looked to the shanachies for their entertainment. "Those old storytellers were artists," Haughey says. "They would take maybe two hours to tell a single story. You would find these tales all over Europe but the shanachies would give them local details—have them happen just down the road. And they would believe every word of it. I once had a shanachie tell me one of those wicked-stepmother stories, and right in the middle of it, after she'd done something particularly cruel, he turned to me and said: 'Wasn't she the right bitch?' "

Valorous kings and queens of surpassing beauty people the shanachies' stories, as well as plain farmers and fishermen. That they go back centuries is indicated by a significant omission: in hundreds of the tales there is scarcely a mention of potatoes. That's because grain was the staple crop in Ireland until the potato was imported from America in Elizabethan times.

It is impossible to classify the shanachies' stories because their repertoires varied so widely, from fantastic adventure narratives and legends about saints to frivolous anecdotes and mythical enchantments. Some of the stories that have been preserved are local legends about hills, lakes and other prominent natural features. For instance, Haughey collected several versions of the legend from which the parish of Cloughaneely—meaning the stone of the head of MacAneely—takes its name. The stone, a cubic yard of rough white quartz, is still visible in a grove near the sea. In Donegal's ancient past, or so the story goes, a marauding cyclops named Balor pillaged the coast and kept his only child, a daughter, locked in a tower because of a prophecy that he could be killed only by a male of his line. A chieftain named MacAneely, from whom Balor had stolen a magical cow, seduced the daughter, who bore triplets. An enraged Balor had the babies rolled up in a sheet and drowned in a whirlpool, and beheaded MacAneely, but one of the triplets miraculously survived to slay Balor with a sword of molten metal and to enter Irish mythology as Lugh, god of light.

The shanachies told legends about heroes that were as gory as they were fanciful. The story of Céatach and his beautiful wife is one such tale (from the collection *Folktales of Ireland,* edited by Sean O'Sullivan). A member of the Fianna, a society of warriors, fell in love with Céatach's spouse and sent him off on a dangerous mission, hoping that he would be killed. Instead, Ceatach returned as a hero. Then, against his wife's wishes, he agreed to accompany the Fianna in a war. His wife made Fionn MacCumhaill, leader of the Fianna, promise to hoist black sails if her husband was returning dead. Céatach led the Fianna to victory, but was stabbed in the last battle. Before dying, he warned Fionn not to hoist black sails. "She has magic power, and if she blows her breath against the ships, the blast will drown every living thing in a hundred miles. . . . She

Shanachies told gory legends about heroes like Céatach, who killed armies of giants and beheaded an old hag.

Patrick Breslin is writing a novel set in Ireland, of all places. His political novel about Chile, Interventions, *was published by Doubleday in 1980.*

Many Irish tales were steeped in history. One told how a man named O'Donnell outwitted Oliver Cromwell.

doesn't mind what happens to anybody, once I'm dead."

Tricked by Fionn, Céatach's wife sailed away with her husband's body to a wild, blasted land. There she hid in a ruined castle where three warrior brothers lived. Each day the brothers fought and killed armies of giants, but each night the giants returned to life.

When the brothers discovered Céatach's wife, she promised to marry the eldest if they would use their magical powers to bring her "brother" back to life. When they revived Céatach, she revealed to them that he was her husband, not her brother.

To repay the warriors, Céatach went out the next morning, killed all of the giants and hid on the battlefield. Just before dawn, he saw an old hag sprinkling drops from a churn on the slain giants, who instantly sprang up. Céatach rushed to kill them and then, after the fiercest battle of his life, cut the head off the hag.

The shanachies' history stories kept alive the often tragic memories of their homeland: the record of military defeats, suppressed rebellions, famines and evictions. Neil Duffy's own father was evicted from the nearby Glenveagh estate in 1861 to make way for blackface sheep. The cruelty of the landlord, one John Adair, and the fate of the tenants, many of whom had to emigrate to Australia, became part of the shanachies' lore. Generations have come and gone, the 24,000-acre estate is now a national park, but so firmly was the landlord's reputation fixed that even today, when they speak his name, Donegal people invariably say: "The *tyrant* John Adair."

In 1649, Oliver Cromwell rampaged through Ireland at the head of an English army. Years before, according to one well-worn tale, a gentleman named O'Donnell was warned of the future invasion by a friar. He went to England and, letting on to be a fool, went around with a book, stopping Englishmen on the streets and asking them to sign a promise that they would never take his house and land from him. Eventually, he came to Cromwell, whom the friar had foretold would lead the invasion. Cromwell was said to be (inaccurately) a shoemaker. O'Donnell had Cromwell patch a shoe, then paid him handsomely for it. Cromwell, pleased, gladly signed the book. A few years later Cromwell rose to power and journeyed to Ireland, killing and evicting. Finally, he appeared at O'Donnell's door and ordered him off his land. O'Donnell produced the book, and Cromwell had to recognize his own signature and leave O'Donnell in peace.

Better known to the rest of the world than legends about Irish heroes and history are the shanachies' stories about enchantments and supernatural beings. Although they are commonly called "fairy tales," that is a misnomer because fairies usually do not figure in them. There is one story, for example, about a man named Eoin Óg of Cruachlann who was gathering periwinkles one day when a beautiful woman rose up out of the sea and came in to rest on a flat rock. When she slipped back into the sea, she left her cloak on the rock and Eoin took it home. He knew she would come looking for it because he had often heard that such women could not return to the sea without their cloaks.

As soon as Eoin got home he hid the cloak and so the

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mermaid had to stay with him. She became very fond of him and they had three children, but Eoin was afraid that the youngsters might see the cloak. Whenever he had an opportunity, he moved it from place to place. It happened that the eldest boy was watching him one day when he hid the cloak under the thatch.

Next day, after Eoin went fishing, the boy showed his mother where the cloak was. When Eoin returned, she made a meal for him and then slipped out the door and got to the sea with her cloak. She was never seen afterward, but the old fishermen used to say that she tried a couple of times to shipwreck boats in which her son was fishing and did not succeed.*

Fairy garb: blue britches, red cap, green dress

When the shanachies did tell stories about wee people, they cautioned their listeners that the fairies were as thick as grass in the Irish countryside. "A grazing cow never let a puff of breath out of her that she did not blow thousands of them out of her way," is how one storyteller put it. Another's description was more detailed: "Most of those who were seen hereabouts wore red caps, and the women wore green dresses. The men wore blue britches and red caps. I heard a man say he had seen as many as 200 of them one evening after sunset, and that is how all of them were dressed. They were about two and a half feet in height. They had red hair and ruddy faces."

Most Irish fairy stories are cautionary, warning the prudent human to avoid the company of the wee folk, for they are as changeable as the Irish weather and turn vindictive in a wink. Moreover, they are constantly abducting humans, particularly children and nursing mothers. Avoiding the ubiquitous fairies, though, is not easy. They have a well-developed territorial imperative, and the countryside is honeycombed with the "gentle places" they favor. Hapless humans constantly run afoul of them by plowing too close to a sheltering bush, erecting a house where they are wont to frolic, or simply taking a shortcut down a lane where they sometimes lay their ambushes. Haughey recorded this story in south Donegal:

"My grandmother came from the other side of the hill, the side towards Glencolmcille. There were three miles of mountain between there and the place she was living. She used to go in and out by the shortcut over the hill any time she wanted to see her family. One fine summer day she was coming back and carrying her child on her shoulder. In those days no child had shoes. They were rarely seen on any child but the son or daughter of a doctor. At every spot she stopped to rest, there was a pair of shoes which would fit the child. At times she would think she would take the shoes and then again she would wonder who would mislay shoes on a path she was the only one to use. It must have been the blessing of God that she did not touch any of them. Afterward she used to think that if she had touched one, that no sight would be seen anymore of her or the child. It was clear to her, to be sure, that it was the hill-folk [fairies] who had put the shoes in her way in the hope that she would be enticed to take a pair, and if she had done so they would have caught her that moment."

A mortal who does a fairy a good turn is usually well rewarded. Charles Boyle, a shanachie in the village of Malin Glen, told Haughey one such story about a man named Paddy Ó Gadhra. As the story begins, Paddy is walking home on a fine moonlit night.

"And as he was going west by Dún Ált at Screig Mhór," Boyle related,"there was a woman standing at the side of the road with a basket beside her. He greeted her and she greeted him. She bent down and lifted the basket and walked in step with him along the road. He made out from the way she was changing the basket from hand to hand that it must be very heavy. 'Give me that basket, please,' he said, 'and I will carry it a bit for you.'

"The house she was making for was the next house to Paddy's own on the east. He went as far as it with

In an old enchantment story, Eoin Óg lived with a mermaid who could not leave because he hid her cloak.

*This and the following stories are from *Fairy Legends from Donegal*, © 1977 Comhairle Bhéaloideas Éireann, Dublin.

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her and bade her farewell then. When he handed the basket to her, she asked him if he drank.

" 'Well,' said he, 'when I am at a fair or market to be sure I will drink a glass.'

"She put a hand in her pocket and handed a shilling to him. 'Now,' she said, 'the next time you are in a tavern, drink my health!'

"Next day Paddy needed an ounce of tobacco and went west to a shop in Malinmore and asked for the tobacco. The man of the shop gave it to him and he threw over the shilling and got the change out of it. Going the road home from the west he put his hand in his pocket and looked at his money and saw that he had the change and the shilling as well.

"He went on like that for a long time. No matter what shop or tavern he would go into he would get change for anything he would buy and when he put his hand in his pocket the shilling would be back in it. He kept it in that way for a couple of years, but at last he began to fear it. He feared that it might lead him to drink too much and to some unknown calamity—that that was maybe why it had been put in his way.

"He went to the priest in Glencolmcille and told what had happened. The priest put his stole around his neck and made the Sign of the Cross on the shilling and it vanished as a drop of water. That was the end of Paddy Ó Gadhra's fairy shilling."

The fairies of Irish folklore enjoy such international renown that they form a conspicuous part of the country's tourist image. "Some of your tourists are so credulous," Haughey says with a laugh. "When they come here, they're disappointed if there's not a leprechaun standing at the corner of every house." But then, Haughey recalls from his own experience a young man who built a house despite warnings that the site he'd chosen was "gentle." The house was of stone and the walls were 18 inches thick. When only the roof slates remained to be hung, a gale came up one night and blasted down the walls. You never know.

Misfortune is common in Donegal and accidents abound. Violent storms pounce from the sea without warning, or crash like artillery on the mountainsides. Fogs slide surreptitiously up the glens, swallowing houses, sheds and roads. The paths are always wet and slippery on the sheer cliffs that plummet to the sea. Loose screes, avalanches waiting to happen, need only the trigger of a careless foot to send them hurtling down the mountain slopes. And the bogs, cleaved with abrupt trenches and oozing stagnant, chestnut-brown pools, contain countless graves solitary and sudden.

The fairy legends helped people to explain and accept the calamities of life in a hard land: the deaths in accident or childbirth, the year's food or fuel ruined by weather so hostile that farmers speak not of harvesting their crops but of "saving" them. When men were saving corn, and a freak whirlwind whipped through the stooks, spinning the grain up and away, they said it was fairies taking their share. When a squall behind Tory Island swept a young and handsome fisherman from his curragh, a fairy princess fierce with desire was said to have abducted him.

"It was how people would deal with their sorrows and their fears," Haughey says. "More than anything else, the old stories provided consolation."

Perhaps there is less need of consolation today. Free health care, various state subsidies and decent pensions sustain the old, and the young can go on the dole. Fewer people fish now, fewer farm. Once the fairies lived so close to human folk that women throwing boiling water from the potato pot out into the road would first whisper a warning so as not to scald them. That doesn't happen very much anymore. The fairy world is receding, and so are the shanachies.

"There are very few of them left now," says Haughey. "One or two perhaps, and them very old. The first thing that came in was the gramophone and then the radio. But it's the television that has finished everything. Once the 6 o'clock news comes on in the evening, there's not a word of the chat. The saddest thing I've ever seen was when I went to visit an old shanachie away up in the mountains. Some group or other thought they would do something for him, and so they gave him a big colored-television set, and it was a terrible mistake. That man, when I knew him, never stopped talking, but now, from 6 o'clock, when the news goes on, there's not a word out of him the rest of the night. They've silenced him entirely."

Shanachies insisted in their tales about wee people that fairies were as thick as grass in the countryside.

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By Helen Dudar

All the world's a page to designer Milton Glaser

His imaginative ideas have transformed everything—from supermarkets to parks, stop signs, railroad cars and calendar art

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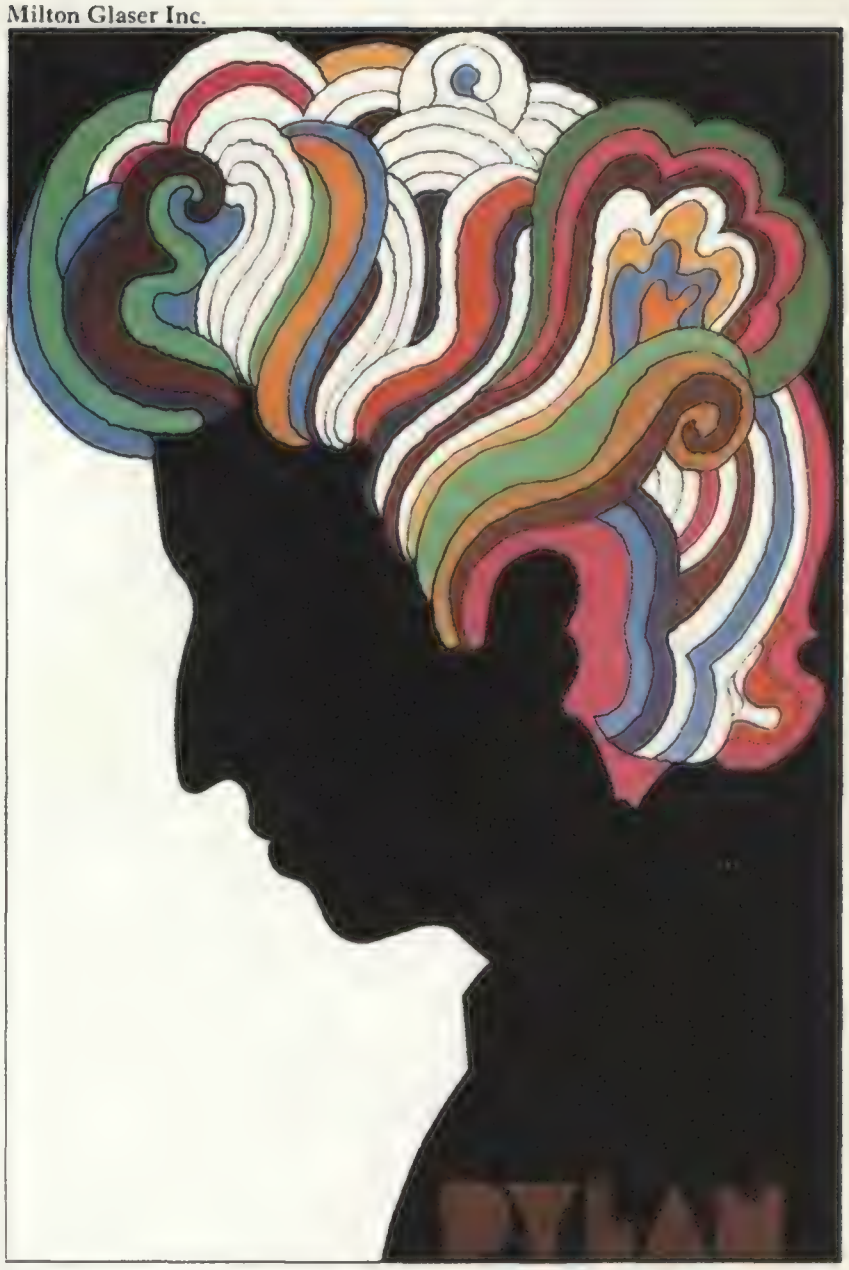


Icon of the late 1960s, Bob Dylan poster recalls Duchamp cutout. Hair was inspired by Islamic art.

Under the steady rain of goods and services we know as the Consumer Culture, the invisible force in every transaction between producer and purchaser is the graphic designer. His is the persuasive hand responsible for the wrappings—the package or book jacket or record sleeve, among other familiar elements—that call out *look at me, remember me, trust me, want me, buy me*. Arguably, the best practitioner of the craft today is a large, sunny, humorous, self-aware, exceptionally articulate New Yorker named Milton Glaser.

A designer with Glaser's copious gifts is a natural target for hyperbole. "Our only genius" is the label conferred on him by Silas Rhodes, chairman of the huge, influential School of Visual Arts in New York, where Glaser teaches. Years ago, before he transformed the way magazines could look, when he was perhaps best known as the creator of a string of remarkable posters, including the memorably stylized image of Bob Dylan, some students at the Royal College of Art in London voted him "the world's greatest designer." Glaser, who balances a sturdy sense of his worth with authentic if somewhat ritualized modesty, concluded in faint bemusement that it was a little like "getting an award for being the world's greatest person."

If he had applied his imagination and irony and erudite nostalgia to nothing but paper goods, Glaser would have, indeed has, had an indelible impact on contemporary design. *New York* magazine alone, which he cofounded in 1968 with Clay Felker, set fashions in grabby graphics and polished typography that made it the most imitated magazine in our time.

That's only the tail of the whale. Intellectual restlessness and flight from boredom have lured him where less adventurous spirits might hesitate to tread. The Glaser stamp is on Childcraft, a toy store in New York; the observation deck of the World Trade Center in downtown Manhattan, as well as the Center's restaurants (SMITHSONIAN, January 1978); a 600-foot mural for the new Federal Office Building in Indianapolis; a table conjured up for the makers of Formica and lately on exhibit at London's Victoria and Albert Museum.

His work impinges on the lives of millions; during the past five years, for example, the firm of Milton Glaser Inc. has concentrated on the complete rede-

With sharp eye and pencil at the ready, Glaser is always on the lookout for a new design challenge.

Photographs by Peter Angelo Simon

Headquarters is four-story town house Glaser bought in 1960s. The firm's annual sales now top $2 million.

sign of the Grand Union chain, a project that will eventually transform at least 350 supermarkets. Alternatively, one of Glaser's most impressive productions has reached only a privileged few. Some time ago, a German maker of quality papers asked him to create a 1984 calendar for a year-end gift to clients. The result was an immense, lavish, loving pastiche, each month an homage to an artist who has been important to him—the likes of Monet, Klee, Delaunay, Ernst, De Chirico, Kandinsky—all rendered with a sure line and a heart-stopping sense of color. Glaser cautiously appraises it as "my best work in years."

Glaser is 55; if in three decades at the drawing board he has turned out occasional clinkers, he does not like to dwell on them. Failure neither frets him nor greatly interests him; he is forever in the grip of tomorrow's possibilities. When he was asked recently what as yet untouched field might tempt him, he said he thought he would like to design a Mozart opera—sets, costumes, the works. No, he had no ideas to offer; he does nothing without an assignment. "I don't even *think* without an assignment."

One of the secrets of Glaser's productivity is the time, including weekends, he pours into projects he enjoys. Another is the apparently complete absence of work anxiety; even when he has taken jobs he did not love, he has rarely blocked. He is also breathtakingly serene under pressure.

Walter Bernard, a partner in a joint editorial-design venture called WBMG, says a major lesson he learned from Glaser was the art of working with interruptions.

Helen Dudar is a frequent contributor. Her most recent story was about collector George Ablah.

All: Milton Glaser Inc.

Sesame Place sign diverts cars from children's play area.

1968 poster combined typewriter with Piero di Cosimo painting.

Two commonplace items on grocery shelf display graphic appeal.

Designers work in easy informality, with Glaser's table in open with others. Calendar art adorns walls.

Years ago, when he was Glaser's associate at *New York*, Bernard came around with a cover problem. "Milton was working on an illustration for another client and he was on the phone. I thought, 'Oh God, this will take forever.' He motioned me over and while still on the phone made a sketch for a cover design. I once said to him, 'I don't know how you do this.' He told me, 'You don't know your capacity. If you think you can do five things at once, try for six.' "

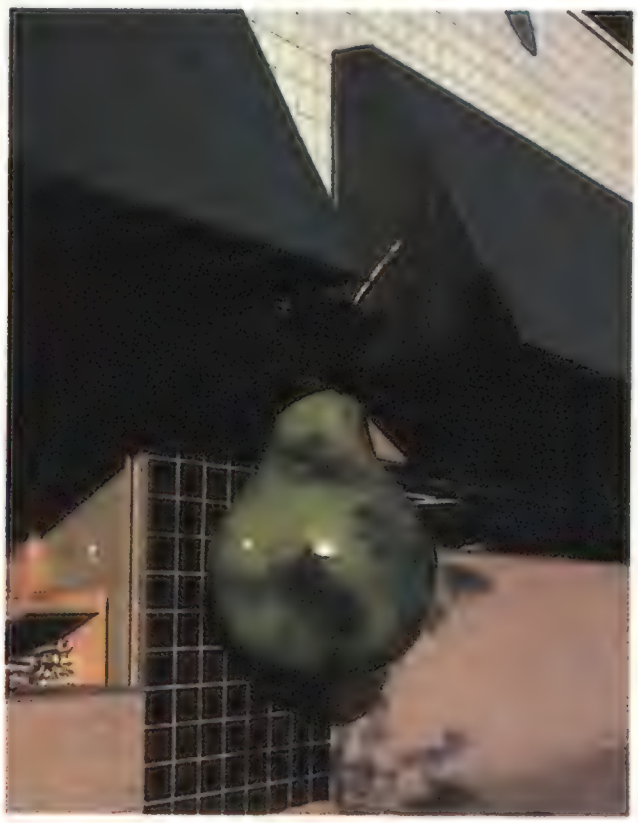
Glaser likes to cite an Isaiah Berlin essay about two kinds of literary artists, *The Hedgehog and the Fox*, that says nearly everything one needs to know about the way he works. The hedgehog in his burrow repeats the same act endlessly. The fox is all over the place.

"I have had two great artistic models in my life," he says. "One was Picasso who wanted everything. He taught me that style consistency was irrelevant; you could move or change or abandon at will. The other was Giorgio Morandi; all he wanted was to paint still lifes of bottles. He did one thing fabulously well."

Picasso was a remote ideal, but Morandi was a mentor. In a year and a half of studying etching with him in Italy, Glaser came to full, powerful command of the simple line. Temperamentally, he acknowledges, he is the fox, doomed to wander in the lush forests of his art heritage.

Multiplicity has been a hallmark of Glaser's career both in the range of his projects and in the styles he has found for them. Echoes of Magritte, Picasso, Beardsley, Japanese woodcuts, Art Deco geometrics—all these and more have found their way brilliantly into Glaser designs. The approach has been part of the graphics vocabulary for so long it is hard to remember that 30 years ago it constituted the new wave.

Artist Sonia Delaunay graces a calendar for November 1984.



Giant pear welcomes shoppers to a New York Grand Union store.

"Fly Head" illustration was inspired by Max Ernst collages.

Glaser jokes with clients from Schlumberger, oil-field services complex; he designs the corporate reports.

Glaser arrived on the scene by way of the Bronx, where he grew up, and Bologna, where, on a Fulbright, he studied with Morandi and discovered the Italian Baroque. His parents were immigrants, Jews from Hungary; his father supported two children as a tailor and dry cleaner. The young Glaser considered himself an artist the day he entered kindergarten. His eighth year was spent in bed recovering from rheumatic fever, and he kept busy creating little cities out of clay. It was, he says, "a way to control your life through the use of poetic material. You see you can't control the world, so you try to create a world you can control."

Home from Italy in 1954, Glaser and two other Cooper Union alumni, Seymour Chwast and Reynold Ruffins, set themselves up as Push Pin Studios, a community of artists that, at various times, included such major talents as Sam Antupit, Paul Davis and Ed Sorel. They looked at the prevailing fashion in design, which was Bauhaus-Swiss, a style and ideology wed to austerity and anonymity, and began swimming against the tide with amazing strength and impact.

"All that stuff about revealing structure and reducing things to their simplest forms—I couldn't go for that," Glaser recalls. "I guess the revolutionary thing we did was to take the position that there is no single voice capable of expressing every idea, that romance is still necessary, ornament is necessary, and simplification is not better than complexity."

Glaser is choosy about his clients. He will not take on a job beset with the kind of "guidelines" that stifle imagination. He has also refused to do cigarette ads and has turned down Army recruiters out of a conviction that he did not want to help glamorize the military. Still, he worries a bit about ideological smugness. "You never know the consequences of what you do," he muses. "As the Buddhists say, 'Good yields bad. Bad yields good.' "

Serious but good-humored dicta flow regularly from Glaser. "Good taste is the death of art," he once said to his friend Peter Mayer, head of Penguin Books. Mayer was a very young man at the time and it took him years to understand that Glaser was separating the prudent creator who works for praise from the risk taker.

Glaser also distrusts such words as "truth" and "beauty." "I'd much rather hear my work referred to as effective than as beautiful," he said one day and then, without missing a beat, "although actually, what I really like is when you can't tell the difference."

Glaser's night and weekend work is done either at a country place in Woodstock, New York, or a handsome city duplex apartment, both shared with his wife, Shirley, two cats and a rabbit that dotes on bananas. Feeling "trapped" by Push Pin's history, he struck out on his own a few years ago. Milton Glaser Inc., together with WBMG, is lodged in a brick town house whose interior walls were gutted to provide airy, sun-sweetened studios for a couple of dozen personnel. The boss' drawing board sits in the open on the second floor. That way, he says beamishly, his telephone conversations can be overheard and everyone is immediately privy to company affairs. The WBMG people have been at work on, among other projects, a redesign of the *Washington Post*. Some of the others are heavily into the Grand Union project, which has involved everything from re-creating facades to new packages for the chain's products.

From magazines to markets in one easy step

Glaser, who likes everything about food including shopping for it, cooking it and talking about it, got into supermarkets as a result of redesigning *L'Express*. The French newsmagazine is the property of Sir James Goldsmith, the British entrepreneur, who also owns Grand Union. He called one day to solicit ideas for his markets. Three months later, Glaser had a batch of proposals, and Goldsmith decided, "OK, let's build one."

Among his major contributions was the idea, now widely emulated, of breaking up familiar, boring lanes of goods with seductive displays that catered to the new gourmet chic: islands of cheeses, oases of fresh fish with their own recipe trays, ripening racks for the produce. It is a small measure of his stubbornness that Glaser argued for two years for the abolition of the "specials" signs that normally deface supermarket

windows. Conventional corporate wisdom insisted they attract business; Glaser, student of American buying habits, knew they had less to do with customer loyalty than light, bright welcoming spaces—and he was right. The new stores are phenomenal successes.

When Grand Union began remodeling its Manhattan market on East 86th Street, Glaser sought a special touch on the outside, an image that could become a street icon. The result, executed in fiberglass by sculptor Jordan Steckel, is a giant pear, eight feet of the commonplace made monumental—yet another benign borrowing, this time from Claes Oldenburg. The piece is prototypically Glaserian, delivering its message in a reassuring balance of hot and cool: the form is voluptuous, sensual; the color a soothing pale green. In a graffiti-scarred city, the neighborhood has paid it the ultimate compliment: in more than two years his pear has never known the touch of a felt-tipped pen.

Glaser à la mode: designer's work was inspiration for electric portrait by photographer Peter Simon.

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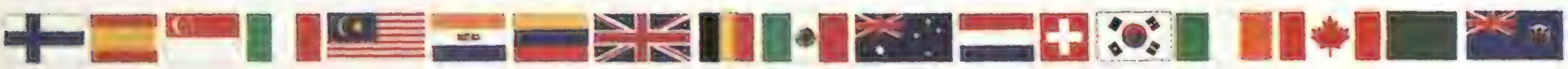

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SAFETY BELTS SAVE LIVES.

By Ellen Ruppel Shell

As the start of this year's pro basketball season approached, teams' schedules were still up in the air.

Making up sports schedules is one game nobody wins

With their home computer and raw nerve, the Stephensons decide who plays where and when—in basketball, baseball, soccer

The brown phone rings and Henry Stephenson grabs the receiver, cradling it between chin and shoulder as he continues to study the terminal screen. The caller is angry and makes no effort to conceal it. The voice is muffled but the message is clear—he thinks that Henry has given his team a bum deal.

"You know when you see an umpire nose to nose with a manager getting dirt kicked on his shoes?" Henry asks. "We get plenty of dirt kicked on ours, too."

The difference is that Henry's shoes get dirty long before the games are played. He and his wife Holly are master schedule makers. They draft the playing timetables for the American and National baseball leagues. They also do the National Basketball Association (NBA) and Major Indoor Soccer League schedules. Their task is worse than thankless—it is perhaps the least appreciated aspect of the athletic enterprise.

Illustrations by John Huehnergarth

This couple tells teams where to go

Ultimate nightmare: the night one team shows up at empty stadium of another that's playing out of town.

Sportswriters they've never seen or talked to damn them in the dailies. Team owners insult them and club managers accuse them of favoritism.

Most fans don't even know they're alive. Yet, without Henry and Holly it's possible that the Celtics might have flown into Los Angeles for a playoff game last June, while the Lakers waited in a dark Boston Garden. Or that four teams could end up in Atlanta one steamy summer night while the Braves were out of town. Or that the Baltimore Blasts may be told to play the Pittsburgh Spirits one afternoon and the Tacoma Stars the next. Thanks to the Stephensons, worst cases like these will continue to be what they now are: mere bad dreams. Still, the complaints roll in.

"Most people are uninformed about the reasons behind scheduling," says Holly, who studied mathematics at Cornell University and has little tolerance for illogic. "They have very short and selective memories."

Holly is in no mood for small talk. She and Henry have driven an hour in 95-degree smog to NBA headquarters in midtown Manhattan. Her feet, swelling in rarely worn high heels, are blistered and she hobbles off in search of a Band-Aid. Henry, who, at 44, still has the shaggy, overworked look of his graduate student days, takes off his sport jacket and skims nervously through the big red book. The book is loose-leaf, filled with pages of computer printout showing schedules of years past. It is the Stephensons' best defense against short and selective memories.

The Stephensons have come to this swank Fifth Avenue suite to justify their final draft of the 1984-85 NBA schedule to Gordon (Scottie) Stirling, an NBA vice president in charge of operations, and operations coordinator Matt Winick. Both men look red-eyed and haggard. They've returned only that morning from a trip to Boston where they spent most of the boisterous night watching the Celtics take the 1984 NBA championship away from the Los Angeles Lakers.

Winick loosens his tie and balances his feet on a desk corner. Stirling does not offer coffee. "So, have you got me a schedule?" he blurts, with a quick glance at the thick computer printout Henry has passed him and Winick. The schedule, of course, is in his hands, but he wants Henry and Holly to tell him what the problems are before the team managers and owners do. He already knows what the biggest problem is: the San Diego Clippers announced that they were moving to Los Angeles after the schedule was drafted. It's already mid-June and the team hasn't nailed down its arena dates, and as a result, Henry says, the schedule hangs by a thread.

"There are four games we're worried about," Henry continues, arming himself and Holly with sharpened pencils. "The burden must be borne by San Diego, of course, but the problem is finding a place to put the games at all."

Studying the printout and checking his own records, Stirling sees that the Clippers' new arena has booked a business convention, a high school basketball championship and "Disney on Parade," an ice show, for three of the four nights in question. Instantly he's on the phone to San Diego, telling Clippers' representa-

Ellen Ruppel Shell last wrote on the education of automobile designers in the February 1984 issue.

tive Mike Hope to clear those dates. Hope makes a few calls and a few deals. He convinces the organizers of the high school playoff to take their night games elsewhere, promising to pick up the tab for another gym. He makes arrangements for a hardwood floor to be laid over the ice the evening of an ice-show matinee. In less than an hour, half of the problem is solved.

But Winick, his bloodshot eyes keenly focused behind thick lenses, has already spotted another "horror." Cleveland is scheduled to be on the road 13 days in a row. Teams dislike being away from home for obvious reasons—it's exhausting and the locals boo. Thirteen days away is too long a trip for any team to bear comfortably, but Cleveland, with its relatively poor winning record, is particularly susceptible.

"How many Saturday nights does Cleveland have?" Scottie snaps. Saturday night home games are plums—everyone wants to play when the crowd is rested and on their side. Friday nights are second best, and Sunday afternoons are third, except in the Bible Belt where fans prefer church and family to beer and basketball on the Sabbath. Monday, Sunday and Thursday nights are the least popular times to play, and few team managers admit that their arena is available then unless forced to by a dearth of other options. Cleveland, Henry points out, has been given 13 Saturday night games, a number exceeded by no other team. This might be enough to mitigate the long road trip. Scottie will call Cleveland later to make sure.

Stadium space is tight: at night, basketball is played on wood floor covering ice for matinee skating show.

Teams gripe about long road trips, when the only way a player's family can see him is to switch on a TV set.

"Some teams I don't mind sending the schedule to in advance," Scottie says, smiling. "Others I'd like to call one day before each game to tell them when and who they're playing." That goes for all three of the Texas teams. San Antonio, Dallas and Houston are so remote that sometimes they travel farther to play teams in their own division than other teams travel to play teams in the opposing division. This time the San Antonio Spurs has really got the short end, with what Henry admits are "three really bad singles." The worst one is a day trip to Portland. "We've been beating that trip since we started this thing," Henry says, "but it won't go away. We'll have to wear bulletproof vests when we have our meeting with San Antonio." Scottie chews on a ruler, Matt sinks even further into the upholstery and Holly buries her face in the printout. It takes more than half an hour to "beat out" the day trip, but it's finally gone—for a price. They've had to up the number of "three-in-a-rows" (in which teams play three consecutive games) from four to six. Nobody likes three-in-a-rows, but they're judged better than the alternative. "Usually when you solve one team's problems you give them to another team," Henry explains.

Teams want weekends at home—when fans multiply like rabbits—but not playing visitors they'll lose to.

Stirling, Winick and the Stephensons meet for three hours. When they adjourn, Henry and Holly find seats in the lobby bar and order gin and tonics. Holly takes off her shoes, Henry rolls up his sleeves. "Eventually you've got to schedule something terrible," Henry sighs, reaching for his drink. "It's all a matter of balance, of doing what's least painful."

Pain is a subjective entity in the world of professional sports. Some teams hurt most when they're hit in the pocketbook—they'll shoot for a full house no matter what the cost to the players. If that means traveling longer distances to get more weekend nights at home, so be it. Other teams prefer to make life easier for the athletes. They'll agree to a few Monday night home games in exchange for less traveling time. Generally, home games are the key to a team's morale and livelihood, but there are exceptions. For example, no second-echelon club wants to play several topnotch teams in a row at home. As Matt Winick put it: "If you've got to come home to play New York, Boston and Philly, you might as well stay away and mail in the results." When it comes to schedules, there is hardly any rule that all teams agree on. While big-city teams usually want big-name opponents on Saturday nights, for example, small-city teams may prefer them during the week, when they can sell out a house that would otherwise go unfilled. And so it goes.

Contending with these and other prejudices and preferences is a big part of the Stephensons' job, which requires the analytic skills of a mathematician, the patience of a priest and the thick skin of a used-car salesman. They rarely go to the games they schedule and almost never get to meet the players. Their office, two sparsely furnished rooms in their home on a modest dead-end street on Staten Island, couldn't be further removed from the big time. There are no pinups of sports stars, no autographed bats or balls. Instead there are a couple of personal computers—a big one for Holly and Henry and a small one for their children, James and Katy. The kids, who tromp in tired after school, use their computer to play games and to do an occasional homework problem. The adults use theirs to keep track of the endless variables involved in scheduling 3,337 athletic events each year.

Baseball, a sport riddled with tradition and superstition, provides the best illustration of the countless imperatives the Stephensons find themselves juggling. For example, the Boston Red Sox must play home games on Patriot's Day, a state holiday on which the famous marathon is run. Fans there like to start at the game, then go down to homestretch of the footrace and watch their favorites collapse over the finish line. The Baltimore Orioles insist on being out of town the day of the Preakness, when the horses draw the lion's share of the crowds. And the Minnesota Twins like to play away at the opening of fishing season, when fly casting supplants fly balls as a common concern.

Everyone wants to be away on Mother's Day

Then there's the Fourth of July. What better place to celebrate Independence Day than a seat in the bleachers? Every U.S. team wants to be home for the Fourth. In contrast, most teams would just as soon be out of town on Mother's Day—only the most determined fan would take Mom out to the ballpark for beer and hot dogs on that day.

It's a wonder that the games get played at all. Major-league sports scheduling is so tricky, in fact, that when the NBA decided to computerize the job several years ago, it couldn't find a computer that was up to the task. That's when the Stephensons stepped in.

"We were both working with computers at the time," Henry says, "and we thought it was an interesting problem." The problem was so interesting that five software design firms had failed to solve it. Meanwhile, things were getting desperate. Eddie Gottlieb, a former coach and team owner who has since been

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honored with a permanent spot in the Basketball Hall of Fame, had scheduled the games since the NBA's inception. But Eddie was in his 80s and ready to retire.

"Basketball has set rules about required travel days, the number of games to be played consecutively, rest days, and so forth," Henry explains. "We wrote a program that incorporated all the rules, but would print out only 80 percent of the schedule." After weeks of sweating it out over a hot terminal hooked to a computer they leased by the minute from a time-sharing service, the Stephensons made what turned out to be the breakthrough observation. Eddie's schedule did not meet the requirements. Instead, he bent the rules to satisfy both individual team preferences and the somewhat less rigorous demands of reality.

"Eddie did it on the back of an envelope and without any great knowledge of the western half of the United States," Scottie Stirling recalls of the New Yorker who passed away five years ago. "You'd always see him running around with little pieces of paper stuck into all his pockets. Then he'd lock himself up in a room, wouldn't tell anybody where he'd be, and eventually he'd emerge—with a schedule." But no one could translate his empirical method into a language the computer could understand.

"The computer would keep searching for a logical place to put a team and there wouldn't be one," Henry states. So the Stephensons spent several long, caffeine-driven sessions with Gottlieb, teasing out the logic behind his success. They learned, for instance, that while the NBA puts a theoretical limit on the number of days of any given road trip, that limit is sometimes exceeded in order to avoid repeating costly and tiring coast-to-coast treks. They also were told that if a certain contest drew especially well on a particular date one year, that was reason enough to schedule the same game for the same date the following season. Eventually it became clear that these "rules of thumb" were so numerous that no packaged computer program could accommodate them. Scheduling required the expertise of an experienced human being.

It would take even the fastest computer thousands of years to work out schedule by trying all combinations.

Schedulers need the skills of a mathematician, patience of a priest and hide of a used-car salesman.

"People think we just lift the lid of a machine, throw in some information and wait for the results," Henry says. "But the computer is only an assistant—we are the schedule makers."

The question of why a computer can't or won't produce a schedule by itself raises an issue that has puzzled mathematicians for generations. The core of the problem is exponential growth—in this case, the fact that any team could theoretically play any other on any given date. This makes the number of possible schedules literally astronomical. Ronald Graham, director of the Mathematical Sciences Research Center at AT&T Bell Laboratories, estimates it would take even the fastest existing computer thousands of years to "number crunch" a schedule by considering each and every possibility.

"Real-world constraints throw curve balls at what

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you're trying to do," says Graham. "If you look at all possible schedules you'll get a combinatorial explosion that no computer can deal with in a reasonable amount of time. People are necessary to confine the problem. A machine can't make a judgment call, it can only do what it is told to do."

So Henry and Holly decided to make a deal with the machine. They do the thinking and negotiating, the computer does the calculating and runs checks to make sure that the unthinkable—like two teams getting scheduled to play the same opponent on the same day—never happens. However, Eddie Gottlieb had an inherent distrust of computers. So in 1978, when the Stephensons drew up their first schedule, Gottlieb designed one too. When time came to compare notes, the old man breathed a sigh of relief: he could finally retire.

A team flying from one coast to the other for a game might lose—not to the other team, but to jet lag.

No one toasted Eddie's retirement more heartily than Henry and Holly. Each had quit a job the year before, Holly as a systems analyst and Henry, who has a master's degree in architecture, as an urban planner. They had sunk a good portion of their savings into computer time. The NBA contract not only helped them recoup their expenses but allowed them to buy one of the new personal computers they'd seen at a trade show while touring the West Coast in a Volkswagen van the year before. The computer, though somewhat primitive by today's standards, was the key to the home business they'd always hoped for.

"Home" at the time was a 17th-century cottage with a Versailles-size fireplace and leaky walls. The sprawling two-story building once belonged to Alice Austen, a photographer who, like the Stephensons, was a pioneer in her field. The city of New York has since renovated the place as a museum, and the Stephensons have moved to more spacious and drier quarters elsewhere.

Within a year of their start with the NBA, word of the Ma-and-Pa scheduling team spread to Lee MacPhail, who was then president of baseball's American League. Like basketball, baseball had a scheduling ace ready to retire, a 40-year veteran named Harry Simmons. A native New Yorker with a wry sense of humor, Simmons has been stuck on baseball since 1919, when he spent an afternoon watching the Yankees go 12 innings against Washington. A student of baseball history for at least half a century, he knows more about the game than just about anyone, and proves it every month with a column he writes for *Baseball Digest* entitled "So You Think You Know Baseball?" He has spent most of his life on the fringe of one ball park or another, first as a public-relations man for the International League and later on the office staff of the Baseball Commissioner. Like Gottlieb, he is described as a genius of scheduling strategies.

A thorny problem: baseball's 2,106-game season

"As a chess player I was always looking for combinations," says Simmons, who is now 76. "You develop a pattern and then you expand it to accommodate however many games are involved."

Baseball poses thorny scheduling challenges, partly because the American and National Leagues differ in the number of teams they field (14 and 12 respectively), but mainly because both leagues play so often. "Baseball has the strictest and most explicit scheduling requirements because the teams play all the time," Henry says. That's 2,106 games a year. Scheduling that many contests around so many restrictions is like maneuvering a Mack truck through a Manhattan rush hour.

"The algorithms we use in designing a schedule are our secret," Henry smiles. "But the thing to keep in

mind is that every home game is also an away game. The trick is balancing the conflicting requirements of the two. We're constantly mixing apples with oranges." And no matter who wins the games they schedule, there are times the Stephensons know *they* just can't win.

"The fellows blast you no matter what you do," Harry Simmons chuckles, from the safety of retirement. "They use the schedule for an excuse when things go wrong." Simmons recalls a time when the general manager of the Buffalo Bisons complained so bitterly about the schedule that Simmons invited him to change it to his liking. The fellow proposed his changes, and Simmons brought the modified version before a general meeting of team representatives for a vote. "I couldn't believe it," Simmons says. "The guy from Buffalo voted no. He said that if he publicly admitted that he liked a schedule, he'd have nothing to blame his team's losses on."

The Stephensons keep juggling the conflicting needs and demands of teams until they produce a schedule. Their product involves 3,337 athletic events a year, with a few team owners and rules bent out of shape.

By Jack Fincher

The grisly drama of the Modoc War and Captain Jack

In 1873 a small band of Indians stood off the U.S. Army and won the nation's sympathy —but then they committed a fatal mistake

Mug shot of Captain Jack taken after he surrendered.

The Modoc War was fought along the Oregon-California border three years before Custer fell at Little Bighorn. It dragged on for six months during 1872 and 1873 to become one of the most costly (per capita) and least satisfying Indian wars in American history. Even in revisionist retrospect the rights and wrongs of the battle are difficult to balance. But it did clearly demonstrate how hard it is to conduct a morally ambiguous war under the watchful, but not necessarily reliable, eyes of the popular press.

The two forces seemed cruelly ill-matched. On one side was the U.S. Army, on the other, a ragged band of about 60 Modocs. The Modoc tribe was small, no more than several hundred people. Until the coming of the white man in the 19th century, they had roamed a 5,000-square-mile hunting range of volcanic plateau on the eastern slope of the Cascade mountains, where they pursued game with obsidian-pointed arrows, ground water-lily seeds into flour in hardened lava vessels, revered their shamans, and slept in lodges made of willow poles covered with tule matting and earth. With the arrival of white traders and settlers in the early 1820s, they would acquire a notable skill at musketry, and an unpleasant reputation for raiding other Indian villages and carrying off young women and children to exchange for horses.

The Modocs, like all Western Indians, suffered from the incursion of white civilization. Wagons crossed their summer ranges, driving off the game, and trade goods disrupted their culture and economic way of life. Toward the close of the Civil War, friction with local white settlers resulted in a forced treaty that moved the reluctant Modocs off their old hunting grounds and onto a joint reservation with the Klamath Indians in Oregon. But by 1870 a discontented group of Modocs had left the reservation, claiming that the Klamaths were hostile and that dishonest Indian agents had withheld promised supplies. In 1872 trouble flared up as a result of this group's refusal to go back to the reservation.

The recreant band was led by a man called Keintpoos, known to local settlers as Captain Jack—a silent, poker-faced individual of 40 with thick black hair bobbed across the back of his neck. Captain Jack was either the consummate and wily warrior-politician or a bendable tule blown by winds of contention within his own ranks, or both; history's jury is forever out. But one thing was sure. He would ultimately undermine the justness of his case, and forfeit all the Modocs' hard-won public support, with a single dreadful act

Modocs' defensive stronghold during war was this jagged lava outcropping near Tule Lake, California.

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"Captain Jack's Cave," sketched for the *Illustrated London News*, was one of many hideouts that helped Modocs and families to survive.

that might have been conceived by the Modocs' worst enemies.

Soon the U.S. soldiers would outnumber the Modocs ten to one. But by 1872 many of the Civil War veterans had retired and the Army's raw recruits comprised a uniformed Gang That Couldn't Shoot Straight. In an article in the *Army and Navy Journal*, an anonymous officer savaged the typical post-Civil War enlistee as "Private Peter Blob," one of those "amorphous agglutenations [sic] of bone and flesh" who knew how to die but not how to shoot: "He always shuts both eyes, opens his mouth, and . . . furiously and blindly [tugs] the trigger until that awful roar comes and goes and is got rid of."

Some of the officers were not much better. In the Modoc War, for instance, nobody adequately reconnoitered the terrible terrain that the soldiers had to attack, a rugged benchland on the south shore of Tule Lake and about ten square miles of stark lava outcroppings that provided enough cover for a small army. Tule Lake straddled the border between the neighboring states, its shores lapping against the Modocs' stronghold: a vast sheet of basalt crumpled into deep ridges, its half-mile epicenter twisted by prehistoric heat into a labyrinth of roughly concentric, semi-subterranean trenches.

Here one of the most dismal and folly-filled conflicts in U.S. Army annals was about to be fought. Thanks to the recent advent of the transcontinental telegraph, an entire nation would watch (and take sides) with a lot of help from the press.

The fight was triggered one frosty morning in November 1872 when a squad of soldiers arrived at Captain Jack's village on Lost River at the northern neck of Tule Lake in order to force the Modocs to lay down their weapons and return to the reservation. When one Indian refused to give up his rifle, a face-off ensued and shots were fired on both sides. When the

Jack Fincher most recently wrote about "Boontling" (February 1984) and the University of Pennsylvania veterinary school (June 1984).

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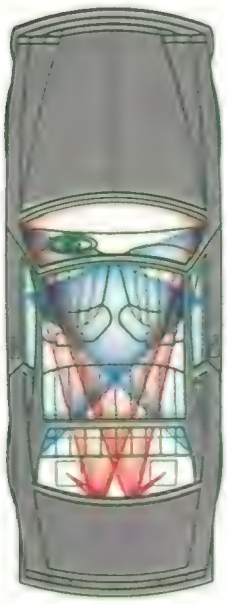

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gunplay stopped, a soldier and one Modoc lay dead on the frozen ground. There were eight wounded, seven of them soldiers, but an Indian woman and child also were killed. Thereafter, a faction of retreating Modocs led by one known as Hooker Jim cut a murderous swath through the ranchlands lying on their escape route.

Before the shooting, Captain Jack had argued against resistance to the government on grounds that it was useless. Despite strong opposition from a militant faction led by the shaman Curley Headed Doctor and Hooker Jim, who was his son-in-law, that view generally prevailed, and word had gone out to the whites that Jack's people might consent to stay in one spot if the spot could be their camp on Lost River. The squad of soldiers had been the government's answer. After the carnage, the Modoc leader must have concluded that there was nothing left to do but lead his band to the bleak volcanic vastness of the Tule Lake lava beds. Let the unsuspecting troops pursue them there!

On January 12, 1873, Lt. Col. Frank Wheaton, the Army's district commander, ordered 175 regular soldiers, 20 Klamath Indian scouts and 104 volunteers—about 300 rifles and two howitzers in all—moved into position for attack around the lava beds. A hundred men commanded by Capt. Reuben Bernard would march on the stronghold from the east and engage the Modocs at dawn on the 17th. The remaining troops under Maj. John Green would strike simultaneously on foot from the west. The Modocs would be "quickly demoralized" by the twin impact of superior numbers, the *Yreka (*California) *Union* blithely reported, "and in their confusion and attempts to escape, would be killed or captured."

Modoc shaman Curley Headed Doctor exhorted Captain Jack to murder.

The Modocs were splendid marksmen, however, and the attackers were in no way prepared for the martial rigor of the deceptively motley collection of short and stocky men who, when their compactly-muscled bodies weren't stripped and painted for battle, wore basket hats, town boots, calico shirts and work pants. "Their bravery nobody can dispute," the *Yreka Union* later reported. "They have hardly any merry makings . . . but chiefly the gloomy truculent orgies of war, of the scalp, and of death. . . . [That and] a toughness of vitality that corresponds with their character." Beyond that, of course, few of the white soldiers had ever set eyes on the "second Gibraltar" they were confidently expected to overwhelm in time for dinner.

Between the advancing Army and the stronghold, the Modocs had concealed sentries to send warning as soon as the bugles sounded that troops were coming. Along the craggy outer perimeter of the inner fortress most of the Modoc warriors waited, crouched paces apart behind outposts of built-up stone. To their rear, their women hid in the natural trenches of lava, ready to refill the muzzle-loaders as fast as they discharged.

Their combined firepower could not hope to match that of the soldiers' breech-loading rifles, of course. But

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The staged photograph (above) entitled "Modoc Brave on the War Path," and actually posed with a friendly Warm Springs Indian, was copied as the real thing by an artist for *Harper's Weekly*.

Captain Jack and his lieutenants were counting on knowledge of the terrain and protected positions. They had also evolved a system of firing teams prepared to spell or reinforce each other on short notice, or fall back if need be to an even more impenetrable second line of defense, complete with natural battlements and embrasures of half-sunken solid rock. To get there the defenders had only to traverse a perfectly formed network of deep trenches and hidden caves where (during the siege) Modoc children played and slept in utter safety.

At dawn, fog blanketed the battlefield. Wheaton was tempted to postpone the operation, but the sound of firing in the east told him that Bernard's men were already committed. After a few aimless volleys to signal that help was coming, Wheaton ordered his forces, which included some local volunteers as well as soldiers, to fan out and advance in a stately skirmish line. Up the plateau they slowly came, firing first at the Indian sentries, who fired back as they retreated from rock to rock, drawing the soldiers on. Soon the chilled and unnerved recruits were firing at phantoms—the lava spires that rose like threatening shadows out of the mist.

As the confused white men emerged from the dense fog, a ghostly, reverberating chorus of contemptuous laughter rang from the maze ahead of them. "Hello! Charley," one Modoc bawled to another derisively, "here is some Yreka boys, don't you see them?"

"Yes!" another bellowed back.

"What makes you come here to fight us? Charley, there is old Dorris!" he added, naming a local rancher. "What's the matter with you, Dorris? Can't you hear? Ain't you got ears? Can't you talk? Ain't you got a mouth?" Then, according to the *Yreka Union*, a rifle shot, and a soldier sank back, a bullet hole in his head.

Peppered by ghostly fire all day long, Wheaton's forces faltered, fell apart, got lost, fired on each other, and finally sought to link up with Bernard's troops by traversing a shallow ravine between the stronghold and the lakeshore—only to be pinned down by a deadly stream of close-range fire from the top of flanking rocks. Anticipating the soldiers' move, the Modocs had rushed firing teams to that point.

Twelve hours after the battle began, the Army at last managed to extricate itself. Nine men had been killed, 28 wounded. The survivors retreated all night—cold, wet, hungry, footsore and utterly demoralized—leaving behind enough rifles and cartridges to fight another small war.

Modocs loyal to Curley Headed Doctor were elated. The U.S. Army had been routed—and without the loss of a single Indian. Why, they could hold out forever. On February 20, two Indian women arrived under a flag of truce to announce that a Peace Commission had been appointed by the Great White Chief in Washington to negotiate an end to the bloodshed. Would Captain Jack come out and parley?

In the Modoc councils that followed, Curley Headed Doctor and others were opposed to parley. Two of the three peace commissioners—rancher Jesse Applegate and former

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Oregon Superintendent of Indian Affairs A. B. Meacham—were hated by the Indians. Applegate's nephews had worked in the reservation commissary which the Modocs believed had cheated them out of supplies promised under the treaty, and Meacham was held partly responsible. Worse, Oregon citizens wanted to treat the warriors who had killed the Lost River ranchers not as soldiers but as criminals responsible to the law for their warlike deeds. Curley Headed Doctor appealed to Captain Jack. Why should the Modocs even consider giving up their arms, quitting their rocky redoubt, and trusting the good intentions of a suspect and hopelessly confused adversary they had just beaten?

Captain Jack disagreed. More and more soldiers would surely come. Snow was falling, food would soon be running low. Despite the protection, the caves were damp and overcrowded. Eventually the band had to come out or perish. Straight talk from the heart was needed with Washington. This was their last chance. The emissaries should go back to the ranch where the Army was headquartered and tell the Peace Commission that he, Captain Jack, leader of the Lost

Murdered General Canby had recently taken command when he was killed.

River Modocs, would talk further, but only with people he trusted.

A few days later the emissaries returned with a respected border settler named Fairchild, and Edward Fox, a correspondent for the *New York Herald*. Denied Commission approval to accompany the delegation, Fox had simply followed their horses' hoofprints in the snow until the party, fearing for his life, invited him to join them. Perhaps Captain Jack shrewdly saw in the dashing former British Army officer his people's final hope of outside deliverance. In any case, a combined conference and interview was arranged in the yawning command cavern with Captain Jack, who looked sick and sat with a blanket around him, his hands resting on the handle of a root digger that was stuck in the ground.

In a long litany of complaints going back nearly 20 years, Captain Jack and other Modocs told Fox about Ben Wright, an Indian fighter who in 1852 had walked at dawn into a Modoc camp, asked to see the warrior in charge, and fired twice, point-blank, with a pistol hidden beneath his poncho. As the leader fell dead, white vigilantes who had bracketed the camp under cover of darkness blazed away from ambush. All but five of the 46 Modocs were ruthlessly shot down, then scalped and mutilated. What Captain Jack did not tell Fox was that the attack had been in retaliation for deadly attacks by the Modocs on wagon trains, the theft of local livestock and the kidnapping (and eventually the forced prostitution) of two teenage white women.

As the reporter scribbled away in his notebook, Captain Jack went on. In 1864, he said, the Modocs had given up their lands around Lost River in exchange for guaranteed winter supplies, a joint reservation with the Klamath tribe, and training in logging and farming. No sooner did their young men learn to cut timber the white man's way, however, than the Klamaths claimed it for them-

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selves. He had appealed; the Indian agents had done nothing. Worse, some of them stole and sold the very blankets and food allocated to keeping the tribe alive. That, Captain Jack explained, was why he had taken his people back to Lost River. Again, significantly, he neglected to mention that Oregon settlers had petitioned the government to send the Lost River Modocs back to the Klamath reservation after protesting that Captain Jack's men were killing and eating local cattle, helping themselves to foodstuffs, even, according to the *Yreka Union*, sitting down at farmhouse dinner tables in the afternoon until their menacing presence coerced frightened ranchers' wives into cooking them dinner.

All in all, it was an impressive and appealing performance, and one that an increasingly cynical Fox was to hear repeated in the weeks to come as negotiators came and went.

But for now, determined to outdo his rival, Henry Morton Stanley, whose epic expedition to Africa in search of Doctor Livingstone had filled the *Herald* for weeks, Fox telegraphed 5,000 words that etched the Modocs' long-standing bill of grievances into the consciousness of influential Eastern readers from Capitol Hill to lower Fifth Avenue. Not only had the Indians been badly treated, he wrote with fresh excitement, they had been "forced into a war which they appear perfectly able to sustain," and at a fearful loss to the United States. As for the Commission, it was nothing more than a "stupendous humbug," a laughable exercise in political trickery designed to whitewash the reservation scandal.

Pleading conflict of interest, Applegate quickly resigned from what he now referred to as "an expensive blunder." Meacham did not. But the damage had been done. Within weeks, newspapers everywhere were calling the war a farce, and opposition had

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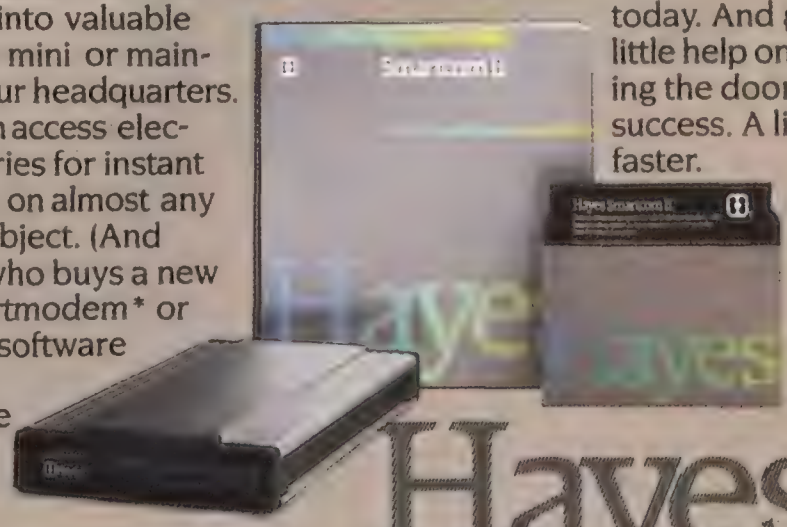

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grown from a few "San Francisco sentimentalists" to a full-fledged peace movement headed by Secretary of the Interior Columbus Delano. If that weren't enough, a hastily written play entitled *Captain Jack, or the Modoc War* opened to a standing-room-only house in Manhattan. Nightly, audiences cheered the Indian chieftain who, as one critic put it, "endures the most frightful oppression [then] butchers promiscuously, with a fervent curse on the pale faces [in] tableaux . . . terrible to behold."

On the scene in Oregon, however, someone in authority had not been stampeded by Captain Jack's media blitz. This was Brig. Gen. Edward Canby, commander of the Army's Department of the Columbia. A West Pointer, Canby, 56, had spent his career fighting Seminoles in Florida, Apaches in Arizona, Confederates in Texas and draft rioters in New York City before accepting this job.

As an ex officio member of the Peace Commission, Canby had come to suspect he was dealing with a Metternich in moccasins. Weeks of stalemate had gone by and still—despite all the emissaries that flew back and forth, as well as gifts that ranged from barrels of biscuits to bolts of cloth—Captain Jack found artful reasons why he and his people might not be able to come out just yet—or ever. They would come out—if Jack could journey to see President Grant. They would not come out—unless Ben Wright could be tried posthumously for murder under tribal law. They would come out—because the hardships were too much for their women and children. They would not come out—because they believed they would be hanged.

In letters and wires to Sherman, Canby indicated that the Modocs were guilty of duplicity. He had decided to surround them in a strategy of "gradual compression," a show of strength that would prove further resistance was hopeless.

The Army's tactic, Curley Headed Doctor correctly saw, was intended to strangle the Modoc will to resist. His supporters soon outnumbered Jack's. In a heated exchange, they unveiled a plot to recoup the initiative and deal the government a blow from which, they said, it would not recover. When Captain Jack hesitated, his opponents at a prearranged signal wrestled him to the ground in front of the whole band and threw a woman's shawl and hat over his head, the ultimate humiliation. With burning eyes, Captain Jack ripped off the shawl and hat and seized back his command. Very well,

The shooting of Canby, as dramatized for *Harper's*, shows Captain Jack pointing a pistol at protesting general. Identification of other peace commissioners is unclear.

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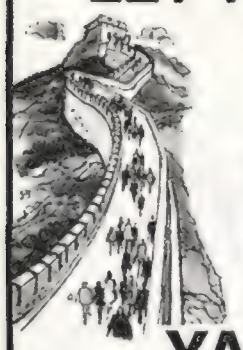

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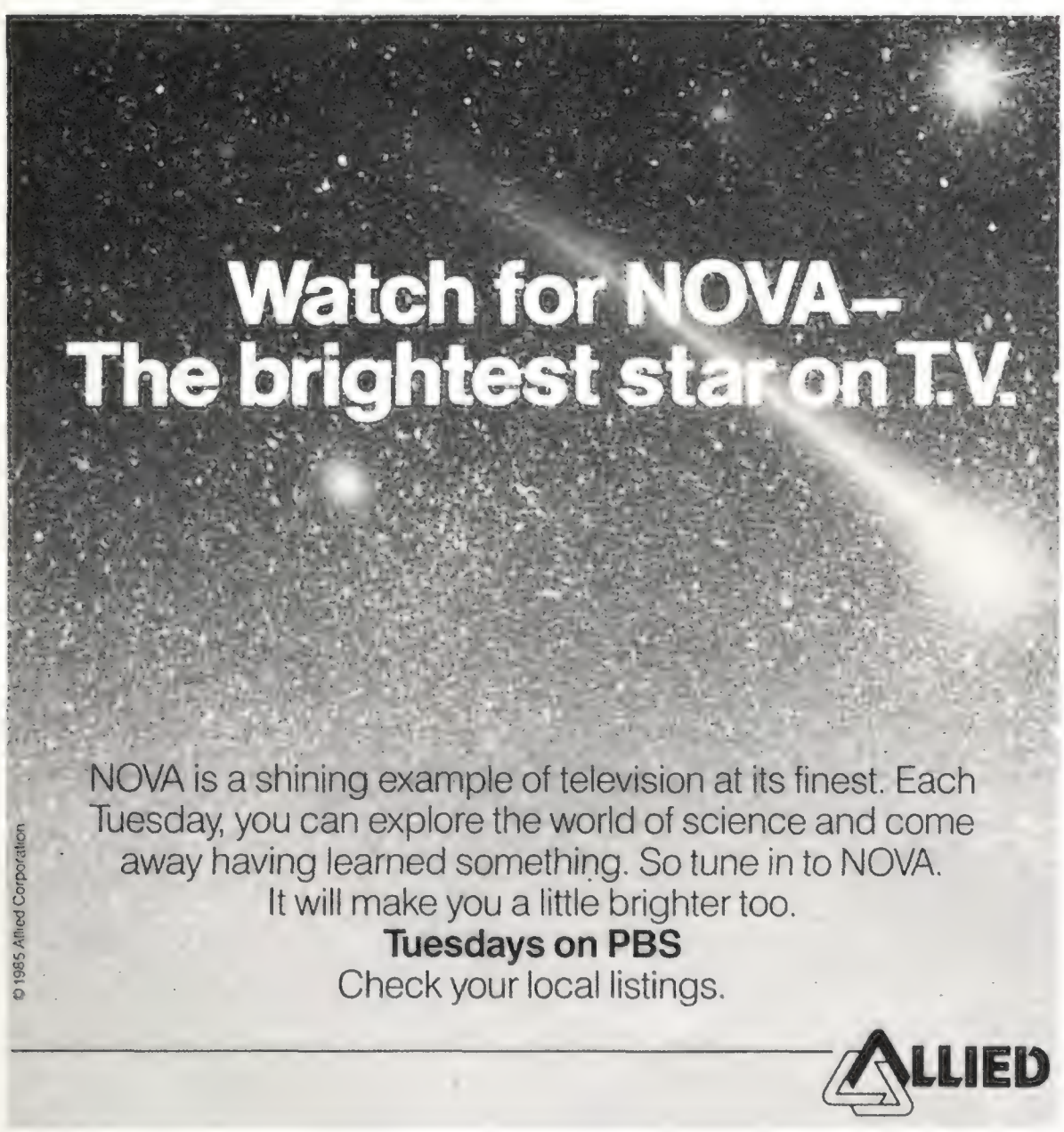
Rare photograph shows Army encamped by Tule Lake during the long siege.

if that was what the others wanted, he as their leader would lead them.

On Good Friday, April 11, 1873, the Modoc War's most terrible tableau was played out, a continent away from the footlights of Broadway. After months of disputing everything from the size of the delegation to the place of meeting, Jack sent word that he and his lieutenants wished to see Canby and the peace commissioners in the council tent erected for that purpose, about half a mile from an Army vantage point.

Canby and Meacham along with the two new commissioners—Indian agent L. S. Dyar and a Methodist minister named Eleasar Thomas—rode to the tent to find six Modocs, two of whom were openly armed in violation of the terms of the meeting, waiting. Without ado, the Modocs demanded that all troops be withdrawn from the area, and that a Modoc reservation be set aside at Lost River, on land already populated with white settlers who, given the recent violence, were unlikely to accept such a solution. Meacham and Canby said they lacked the power to agree to either demand. Whereupon Captain Jack, who had walked behind the general on the pretense of relieving himself, suddenly gave a cry, whipped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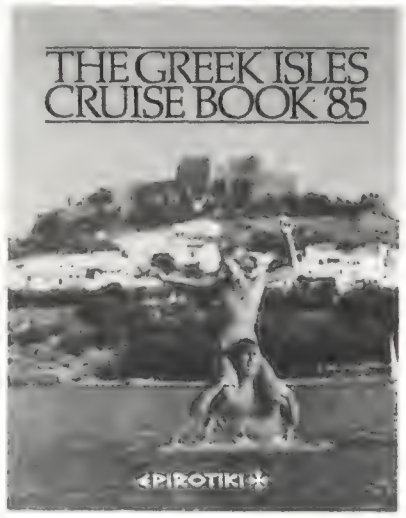

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a pistol from his blanket, shoved it toward Canby's head and fired.

A barrage of shots from the other Modocs shattered the noontime air. Dyar managed to sprint to safety. But for the rest, soldiers double-timing to the rescue saved only a half-scalped Meacham. Though he had also been wounded by gunfire, he somehow survived. Thomas and Canby lay stripped and dead of bullet wounds in the head. Canby's throat had been cut. He was the first American general to die in an Indian war.

As news of the massacre spread, the soldiers forgot their fear in a growing anger. Fury at the betrayal soon carried them over the jagged bluffs toward the stronghold for a pitched battle in which Army mortars—the Modocs called them "guns that shoot twice"—rained deadly missiles for two nights. According to *Harper's Weekly*, one Modoc was seen quizzically chewing on the fuse of an unexploded shell; it detonated, blowing him to pieces. When the soldiers reached it, six days after Canby's murder, Captain Jack's command post was empty. Only one enemy body was found, along with four older Modocs who, unable to travel, had been left behind. The soldiers apparently shot the four. The rest of the band had

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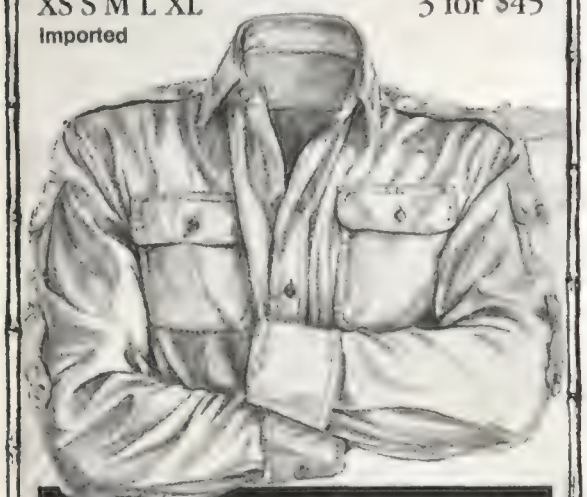

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Engraving of the massacre site included not only a cross but tent pegs (foreground) to show where the peace tent was pitched.

escaped through trenches and tunnels, to surface again four miles away on the southern edge of the lava beds, their campfires burning like defiant flags in the dark.

The nation recoiled in outrage at the murder of Canby, an act that "seemed to shock the public mind as no event has done since the death of President Lincoln." Newspapers were now unanimous that an Indian policy of "philanthropy run mad" should be speedily replaced with "the gospel of Sharps' rifle." A letter from 18 veteran Indian fighters volunteering for action aptly reflected the ugly mood of General Sherman's terse wire to the Army: "The President . . . authorizes me to instruct you [that] you will be fully justified in [the band's] utter extermination."

A 60-man patrol sent to feel out the enemy ran into an ambush at Hardin Butte. In a panic they broke and ran, leaving their wounded behind. Twenty-six were killed and 19 wounded, bringing the grim scorecard of U.S. casualties to 138. (The Modocs, it was later learned, lost only five men in actual combat.) Despite their victory over the patrol, the Modocs kept retreating. For several weeks they terrorized whites with periodic hit-and-run raids on civilian wagons bringing supplies to the Army. But in mid-May the band jumped a 40-man patrol commanded by a hard-bitten career artillery captain named H. C. Hasbrouck.

To the Modocs' astonishment, Hasbrouck's men not only refused to buckle but charged fiercely up out of the dry bottom of aptly named Sorass Lake where they had been ambushed, 13 miles southeast of the stronghold, and overran the Indians, forcing their retreat. The Modocs found themselves in full flight on foot.

On May 22, short of water, most of the band surrendered with their families. For the next ten days warriors continued to trickle in and lay down their arms. On June 1, in one of the grim ironies of a grim and ironic war, the Army finally tracked Jack down with the help of Hooker

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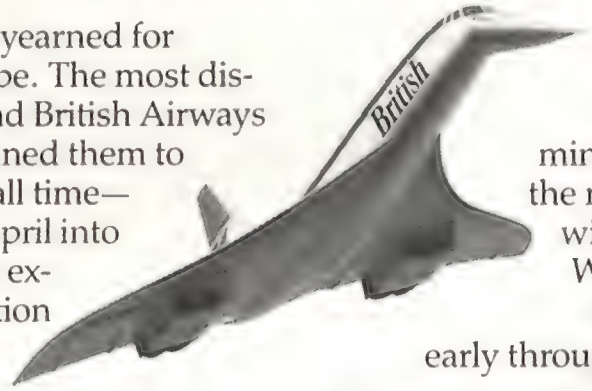

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Jim and other Modocs. In exchange for amnesty, the very group that had incited Jack to murder in the first place ended up betraying him.

When word spread that the awful war was over, pent-up feeling ran high. Asked to identify their assailants, a mother and daughter, both widowed at Lost River, pulled a knife and pistol and attacked the Indians, but only succeeded in wounding Canby's successor, Col. Jefferson C. Davis (no kin to the Confederate President). A wagon transporting a number of Modoc prisoners, including women, children and old people, was intercepted by two unidentified men who ruthlessly shot and killed four young Modoc men.

Captain Jack and the other ringleaders were jailed in the guardhouse at Fort Klamath, Oregon. Six weeks after their five-day military trial concluded July 9, President Grant approved the sentence: Jack and five others would hang for the murder of Canby and Thomas. (Curley Headed Doctor, who had helped force the treacherous assault on the Peace Commission, but pulled no trigger, was not included.) On October 3, 1873, two of the Modocs were reprieved. The other four, Captain Jack among them, went to the gallows.

Afterward, in a tent, on a table covered with black waterproof tarp, a rubber blanket, a barrel of water and a case of surgical instruments, their heads were removed and placed in alcohol for shipment to the Army Medical Museum in Washington.

"This is vengeance, indeed," the appalled correspondent for the *San Francisco Chronicle* wrote. "[Captain Jack] said that he would like to meet the Great White Chief in Washington face to face. The government evidently intends that his dying wish shall be respected." The *Army and Navy Journal* defended the action on scientific grounds, noting that the condemned were to be medically dissected. But, it said, "our government has not relapsed as far into the barbarism of our ancestors as to make such a display . . . as they were wont to do over the London Gate of Temple Bar. . . ."

The skull of Captain Jack would later come to the Smithsonian Institution, along with most of the contents of a disbanded Army Medical Museum, and it was eventually turned over to members of the Indian community.

There are not many Modocs left today. Shortly after the war the remnants of the tribe were dispersed to Oklahoma's Indian Territory where they lived in "exile and poverty," as historian Erwin Thompson put it. One hundred and fifty live there now. In 1909, however, the government allowed any of the Modocs who were so inclined to return to the Klamath reservation. Some chose to return and a few of their descendants still live on in Oregon.

The Modoc defense line, a fairly continuous wall of stone, can be seen in this contemporary photograph taken at Lava Beds National Monument.

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Book reviews

The Birth of Neurosis: Myth, Malady and the Victorians
George Frederick Drinka, M.D.
Simon and Schuster, $21.95

Medicine too has its fashions. Long before psychiatry became a science, religious fanaticism or popular superstition held that emotional and behavioral distress was caused by demons or gods who "possessed" the person.

In medieval Europe a curious medical fashion at one time was a so-called "Ship of Fools" on which men and women with aberrant behavior were abandoned. The factual ship's pathetic and comical cargo became the subject of allegory in fiction, philosophy and paintings afterward for hundreds of years. This symbol of an insane nightmare ship wandering on a sea of chaos haunted the Western imagination. Then as now it was a truism that even the most sensible people have their irrational moments. That is why the foolish behavior of, say, a King Lear or a Don Quixote is timelessly fascinating, and why good books, such as Dr. Drinka's, that give an understanding of psychological health and illness are so eagerly read.

The book's title is particularly apt, for in the 19th century neurosis came into fashion. "Victorian" both in time and in spirit, Europe and America seemed to abound with its various forms. Why this should have been so, the puzzling rise and ebb of these trends, and the identity of the people playing out their roles—medical, historical, literary and artistic—in that era is the kernel of George Drinka's multilevel and superlative survey.

The psychiatrist-author's clarity of thought and expression, plus a good-na-

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Gabriel Cortez
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tured approach to his quite morbid subject are the key to a remarkable style. His occasional colloquialisms may date the book quickly; nevertheless, the ideas throughout are exceptionally thought-provoking. The lay reader—for whom the book clearly is intended—will undoubtedly agree with its conclusion, that "the old theories and myths about neurosis are not dead."

From the very beginning Drinka captures the reader's attention and capably sustains his appeal. Interspersing a sense of humor with a superb sense of timing, he interprets psychiatric events and relates these to Victorian attitudes.

Using the flashback technique of film, the inventive author begins with a fictional case history based on historical reality and then proceeds to the history of neurosis itself. Coincidentally, the languid neurotic Victorian in Drinka's first chapter is an updated version of those lunatic wanderers on the fools' ship that haunted the medieval seas. Like them shipbound and despondent, the Reverend K., a young American, crisscrosses oceans in search of the popular cures of the day that will ease his "frayed nerves," his stomachaches, swoons, headaches and "nervous prostrations"—warm baths, electricity, massage, hydrotherapy, hypnosis.

In the next chapter we learn that the modern understanding of nervousness began early in the 18th century when a physician identified himself as a sufferer of what he called the "English malady." In the same vein of scholarship worn lightly, Drinka surveys how psychiatry's "Founding Nervous Fathers" updated antiquarian theories while adding a few quaint (to us) gems of their own.

It is commonly accepted that modern humane psychiatry began perhaps with the symbolic act of Philippe Pinel, who, after the French Revolution, literally removed the chains from the inmates of two French mental hospitals (the Bicêtre for men, the Salpêtrière for women). Drinka's book is sprinkled with marvelous illustrations from professional tracts and from art, and particularly effective is Antoine Fleury's painting showing *Pinel Freeing the Madwomen at the Salpêtrière*. It was there, some 70 years later, that Jean-Martin Charcot, who later would be Sigmund Freud's mentor—but Freud's thinking would take a variant course—experimented with the use of hypnosis in curing

his hysterical patients. From Charcot, and from the maligned Franz Anton Mesmer before him (for whom mesmerism is named), Freud and the French Pierre Janet evolved their conflicting causality theories of unconscious behavior, as well as their common belief that mental illness could be cured.

One needs to savor the book twice. Read it once for the sheer enjoyment of being led by an expert teacher into a weird but fascinating terrain. Sample it the second time with a dictionary (for unusual words like nosology) and, for background, an assortment of historical and literary writings: the philosopher Michel Foucault's *Madness and Civilization* (with its long first chapter on the theme of a Renaissance folk book entitled *The Ship of Fools*); Ernest Jones' biography of Sigmund Freud; the troubled novels of Fyodor Dostoevsky; the psychological dramas of Henrik Ibsen and of Arthur Schnitzler—whose exquisite talent was influenced by Freud's psychoanalysis.

A full picture of psychiatric disorders today is not quite the sum of its neat, Victorian parts. "The interplay between stress, mental pain, and physical symptoms now seems richly complex," muses Drinka. Complicating this new biological trend is the old fact of changed life-styles. By delivering this much-needed *Birth of Neurosis*, Dr. D. sets the stage to illuminate medical fashions.

Ailene S. Goodman
Associate director, *Journal of Evolutionary Psychology*

Sketchbooks of Hiroshige (2 vols.)
Text by Sherman E. Lee
Braziller, $45

In 1905, Crosby Stuart Noyes, editor and publisher of the *Washington Evening Star*, a man of broad cultural interests, gave the Library of Congress more than 1,300 "Japanese pictures, engravings, illustrated books, etc." Among them were these two volumes, now reproduced with great delicacy and precision. Sometime thereafter, as will happen even in the best library in the land, the two volumes got mislaid. Recently rediscovered, they now are published in complete form for the first time.

Hiroshige was born a samurai and died a Buddhist monk, but neither of these traditional occupations interfered with his true vocation, recognized by him at a very early age. Indeed, they may have helped: certainly there is a swift sureness of stroke not unrelated to the warrior's, and the contemplation of nature evident in and occasioned by his work is monkish activity of the highest kind.

The last great *Ukiyo-e* artist, Hiroshige is best known for his color prints. In his very large production—more than 8,000 works—there are twice as many prints as there are paintings and drawings. He made his reputation with *The Fifty-Three Stations of the Tokaido*, the highway between the old imperial capital, Kyoto, and Edo, now Tokyo—one of several such series of views by which he became widely popular both in Japan and the West. He was very influential on the Impressionists and Post-Impressionists, and the influences worked both ways. He admired and employed in moderation European perspective and, more seriously, he began using the European printing dyes that were introduced into

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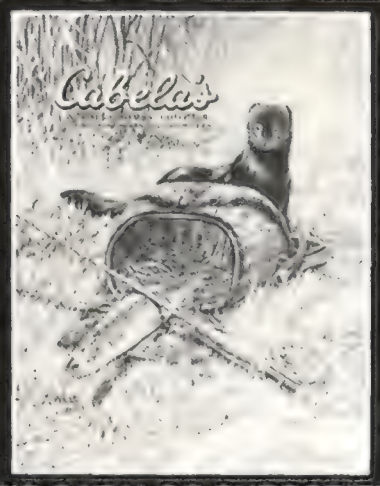

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Hiroshige creates a world in a few strokes in detail from *A Smoke on Work-Break.*

Japan following Commodore Perry's Pacific overtures. In his late prints and in late impressions of some of his earlier ones, there thus often appears a harshness of color somewhat at variance with the overall mood of his work.

We see Mount Fuji from several vantages; rivers, waterfalls, islands and coastlines; silhouetted figures at dusk; a farmer sitting, smoking, his wide-brimmed straw hat beside him; flights of birds, the graceful Japanese sailboats; courtesans and other ladies disporting themselves sedately—all the world of daily life against the lovely land. In Volume 2, the artist adds Kabuki, fables and folktales for subjects.

All the images are on double sheets and the book wisely follows the original in being between cloth boards but unbound. Each volume is one very long sheet of paper printed on one side only, the joins apparent only to close scrutiny. In each double spread, the figures or forms of nature are miraculously placed in space so as to conjure up the whole world that is not explicitly noted. The figures themselves are drawn with the same economy, often a mere outline, creating in the mind's eye the invisible details of body contours, movements, even gestures.

Sherman Lee, longtime director of the Cleveland Museum of Art, now emeritus,

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has written a model introduction, relating the artist to his contemporary and older Japanese art, asking the right questions, registering scholarly disagreement—he doesn't think, for instance, that these are properly "sketchbooks" at all, but souvenir albums for a "more exalted clientele" than was buying the prints—and dealing firmly with the question, vexing only to Westerners, of true attribution in view of the artist's workshop. His commentaries on the individual plates are likewise exemplary, offering information when useful, saying almost nothing when almost nothing is needed.

Frank Getlein
Washington-based critic of the arts

The Gardener's Year
Karel Čapek
Illustrated by Josef Čapek
University of Wisconsin, $12.95/$7.95 paper

"There are several different ways in which to lay out a little garden; the best way is to get a gardener." Thus begins Karel Čapek's collection of essays on gardeners and gardens. The first part of the sentence might have been written by Gertrude Jekyll, the venerable Victorian garden designer and writer. But the second part of the sentence suggests a writer who marches to the beat of another kind of drummer. And that beat is similar to James Thurber's. The gardeners Čapek describes are languid, absentminded and otherworldly, and their craft is imprecise, unscientific and at times irrational.

Author of the play *R.U.R.* and of the spine-chilling and disturbing science-fantasy masterpiece *The War of the Newts*, Čapek was also a devout second-generation gardener, although, apparently, a bumbling and bungling one. His cheerful meditations on the subject of gardening, first published in Czech in Prague in 1929 and originally transplanted into English in 1931, should be listed among the classics of gardening books. Read this book if you want to know why cacti are mysterious and how seed catalogs may be compared to Homer's *Iliad*. Or if you are intrigued by bits of information such as the subcategories in the flora of railway stations or the impossibility of growing anything in post and telegraph and internal (inland) revenue offices.

But this is not the book for you if you insist on getting what hard-nosed types in another call of life refer to as the "bottom line." No, Čapek has nothing truly useful to add to the discussion on growing delphiniums south of New York, and he offers not a single smart tip on shortcuts to constructing an Alpine garden. Čapek wrote for the armchair gardener, the type who does not necessarily get down to planting a daffodil but who can cherish a daffodil as much as the neighbor who grows 120 varieties of it. Čapek's pace is leisurely, and his limpid style predates fast-moving narratives.

Čapek offers delicious dicta, such as "The gardener's autumn begins in March; with the first faded snowdrop" and "September is a gratifying and excellent month" because "September is the chosen month for everything that flowers a second time." He dismisses "market gardens," yards where vegetables are grown, but rhapsodizes over the "glory of our Czech autumn"—heaps of sugar beet.

A truckload of manure steaming in the

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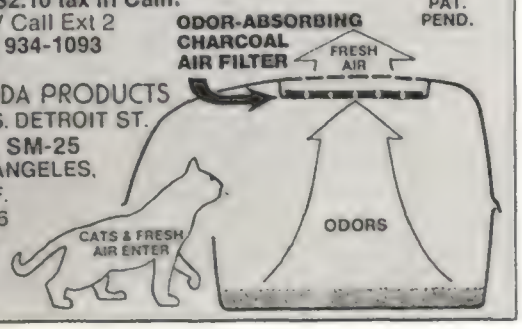

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autumn air reminds him of a sacrificial altar, and he calls February "this addle-egg among the months." He goes Wordsworthian describing the gardener as living for the future. "The right, the best, is in front of us," he writes. "Each successive year will add growth and beauty."

My favorite passage is an epitaph that I believe at least some gardeners would gladly accept: "After his death the gardener does not become a butterfly, intoxicated by the perfumes of flowers, but a worm tasting all the dark, nitrogenous, and spicy delights of the soil."

He reminds those of us who work up a sweat digging heavy clay and writing about pruning bushes at the right time that there is another sense to gardening beyond utilitarianism, and that the garden is indeed civilization. Cultivating such a garden means humor and indiscipline and leisure, as well as hope and failure and irony.

Charles Fenyvesi
Washington writer about gardening

Permanent Addresses: A Guide to the Resting Places of Famous Americans
Jean Arbeiter and Linda D. Cirino
M. Evans, $7.95

At Mount Olivet Cemetery in Chicago you can see the gravestone of gangster Al Capone. Capone's body, however, doesn't lie there. His grave was so trampled by tourists that his family had the body moved to Mount Carmel Cemetery in suburban Hillside, leaving behind the original marble tombstone.

Such anecdotes form the necropolitan substance of what the jacket copy describes as "an offbeat travel book." Listing about 1,500 names under occupational chapter headings (Entertainers, Military, Artists, Criminals, etc.), the authors not only identify grave locations by cemetery name and address but also detail little-known trivia about the famous deceased's last days, funeral or (as in the case of Capone) posthumous events. A geographical section lists notable graves alphabetically by state and city.

Even if one resists the temptation to call this effort the last word in guidebooks, one can too easily go to the other extreme and discount its interest and value. The jacket copy, curiously, does this very thing by appealing to "the armchair morbidity buff," as if needing to categorize its audience as somehow unusual and eccentric. If that's true, there are a tremendous lot of us who must be so labeled.

Thousands annually pilgrimage not only to such well-known tombs as those of John F. Kennedy and Elvis Presley, but to those of Robert Frost, Edgar Allan Poe, Babe Ruth, Hank Williams, Jesse James and countless others. The crowds that seek out the last resting places of favorite heroes or villains make it obvious that cemeteries are essentially for the living, not the dead. As the authors state: "Our interest in the celebrated does not end with their deaths, nor does our affection and admiration for them. . . . A gravestone is a reaffirmation of a presence that once moved the world."

Yet, though the authors' biographical research is impressive, the book is marred by a few glaring errors. Will Rogers' tomb, for example, is not in Glendale, California, but in the Will Rogers Memorial at Claremore, Oklahoma; the grave of Martin Luther King jr. was moved years ago to the King Memorial near Ebenezer Baptist Church in Atlanta and is not in that city's South View Cemetery. Such errors do not inspire confidence.

Thus, while *Permanent Addresses* can hardly qualify as the definitive gazetteer that interested seekers of "grave Americana" honestly deserve, it adds interest as an entertaining "list book" to specialty travel literature. One doesn't really need to be a morbidity buff to enjoy it.

John Eastman
Author of *Who Lived Where*

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Additional reading

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"Scrounging Spark Plugs to Build a Dream Like Lindbergh's," *Washington Post*, November 4, 1984

"Burt Rutan: Revolutionizing the look and speed of airplanes" by Dennis Meredith, *Science Digest*, July 1984

"Going the Distance" by Peter Garrison, *Nissan Discovery*, September-October 1984

"What's Happening with Those Rutan Airplanes?" by Peter Garrison, *Flying*, January 1983

Henri Rousseau (p. 80)

Henri Rousseau by Dora Vallier, Abrams, 1964

The World of Henri Rousseau by Yann le Pichon, Viking, 1982

The Banquet Years: The Origins of the Avant-Garde in France 1885 to World War I by Roger Shattuck, Vintage, 1968

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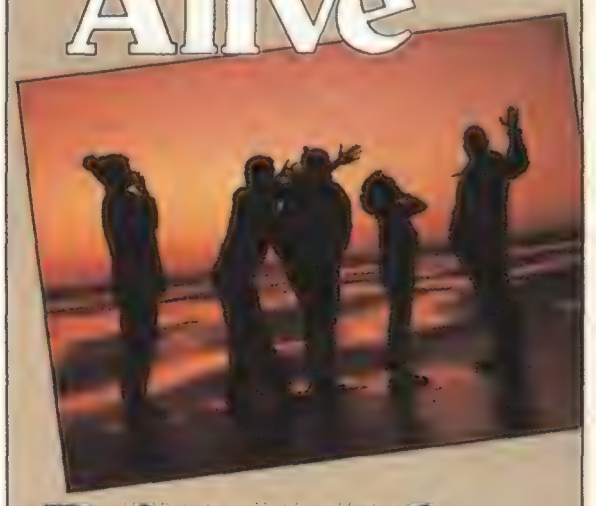

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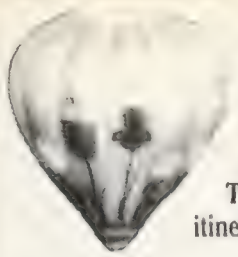

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La Verité sur le Douanier Rousseau by Henry Certigny, Plon (Paris), 1961

Japanese tree wrapping (p. 94)

Japanese Gardens for Today by David H. Engel, Charles E. Tuttle (Rutland, Vermont), 1959

The World of the Japanese Garden by Loraine Kuck, Walker/Weatherhill (New York), 1968

Landscape Gardening in Japan by Josiah Conder, Dover, 1964

Invitation to Japanese Gardens by Gisei Takakuwa, photographs by Kiichi Asano, Tuttle, 1970

Space and Illusion in the Japanese Garden by Teiji Itoh, Weatherhill, 1973

Irish mythology (p. 104)

Fairy Legends from Donegal, collected by Seán O hEochaidh (Haughey), Comhairle Bhéaloideas Eireann, University College Dublin, 1977

Folktales of Ireland, edited by Sean O'Sullivan, University of Chicago Press, 1966

The Celtic Consciousness, edited by Robert O'Driscoll, Braziller, 1982

Milton Glaser (p. 116)

Milton Glaser Graphic Design by Milton Glaser, Overlook Press (Woodstock, New York), 1973

"A Conversation with Milton Glaser" by Peter Mayer, *Dialogue* (U.S. Government Information Agency, Washington, D.C. 20547), March 1984

"Grand Union" by Milton Glaser, *Graphis 229*, January-February 1984

Modoc War (p. 134)

The Modocs and Their War by Keith A. Murray, University of Oklahoma Press, 1959

The Indian History of the Modoc War, and the Causes That Led to It by Jeff C. Riddle, Marnell (San Francisco), 1914

Modoc War: Its Military History & Topography by Erwin N. Thompson, Argus (Sacramento), 1971

Following the Indian Wars; The Story of the Newspaper Correspondent Among the Indian Campaigners by Oliver Knight, University of Oklahoma Press, 1960

Wigwam and War-Path; or the Royal Chief in Chains by A. B. Meacham, John P. Dale (Boston), 1875

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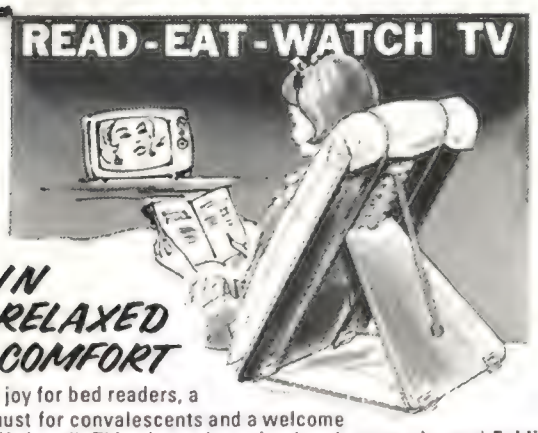

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Smithsonian highlights

To commemorate Black History Month, the National Museum of American Art has brought together the works of five black artists who were well known in their time but are not well known today. *Sharing Traditions: Five Black Artists in 19th-Century America* includes four painters and one sculptor, Edmonia Lewis. Lewis is the first known black woman sculptor; in 1865 she traveled to Rome, where she worked in the neoclassical style (p. 166).

Special February exhibits and events

National Museum of African Art
Praise Poems: The Katherine White Collection (through February 24).

National Museum of American Art
Alice Pike Barney: Pastel Portraits from Studio House (at Barney Studio House; through June 30, 1986) See *Highlights continued.*

National Air and Space Museum
Wright 1903 Flyer Restoration (February 1-May) Restoration in Gallery 110.

National Museum of American History
Time and Dreams: Black History Month (February 6, 13, 20, 27; noon; Carmichael Auditorium) Film series.

Smithsonian on the air

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Resident Associate events

To become a Resident Associate, or to find out about the many other activities presented monthly, or for fee and ticket information, call 357-3030. Here are some February events:

Emerson String Quartet (February 9; 7 P.M.) Performance with guest pianist Menahem Pressler.

Len Cabral, Storyteller (February 12-March 2) Program in Discovery Theater features folktales from Africa, Cape Verde Islands and the Caribbean.

Israeli Cinema (Five Tuesday evenings beginning February 12; 7 P.M.) Film series.

That Raj Nostalgia (February 13; 8 P.M.) Lecture by Indian Ambassador Bajpai.

All-American Mini-Circus (February 17; 3 P.M.) Magic, mime, juggling, unicycling.

Edmonia Lewis' neoclassical style (detail).

National Associates Lecture and Seminar Program

In February, the Lecture and Seminar Program will travel to Santa Barbara, California, and Charleston, South Carolina, to present lectures and seminars designed to acquaint Associates living outside Washington, D.C., with current Smithsonian activities. In Santa Barbara, February 19-25, lectures feature Hawaiian art and bamboos of the world, with a three-day seminar on marine ecology.

The Charleston series, February 27-March 4, includes lectures on historic preservation, American portraiture, and nature photography. Associates in these cities should have received invitations by this time. For further information, write: Lecture and Seminar Program, A&I 1190, Smithsonian Institution, Washington, D.C. 20560.

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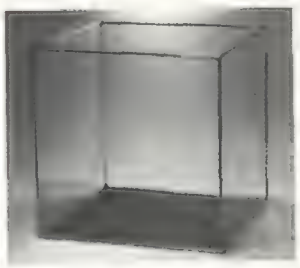

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a show in your community, write: SITES, Smithsonian Institution, Washington, D.C. 20560. Some February exhibits:
Bakersfield, California (February 2-March 3) *Know What You See: The Examination and Treatment of Paintings,* Cunningham Memorial Art Gallery.
Norwalk, Connecticut (February 16-March 17) *Mathew Brady Photographs From the National Portrait Gallery's Meserve Collection,* Lockwood Mathews Mansion Museum.
Macomb, Illinois (February 23-March 24) *The Shopping Bag: Portable Graphic Art,* Western Illinois University Art Gallery.
Lake Charles, Louisiana (February 23-March 24) *Images of Old Age in America,* Frazer Memorial Library.
Midland, Michigan (February 9-March 10) *The Dog Observed: 1844-1983,* Midland Art Council Center for the Arts.
Billings, Montana (February 2-March 3) *Matchsafes: Striking Designs,* Western Heritage Center.

Musical Weekend in April

The 13th Musical Weekend, April 26-28, will open with the traditional bagpipe salute and dinner in the historic Smithsonian castle. Participants will hear Pinchas Zukerman performing with the National Symphony Orchestra at the Kennedy Center for the Performing Arts. A reception will follow. Saturday, a demonstration of instruments in NMAH's collection will be followed by a Potomac boat ride and picnic. Other highlights will be tea and music at the British Embassy and a champagne breakfast at the National Zoo. For reservations write Musical Weekend, Room 4124 NMAH, Smithsonian, Washington, D.C. 20560.

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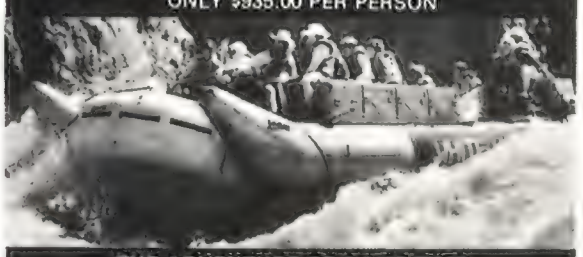

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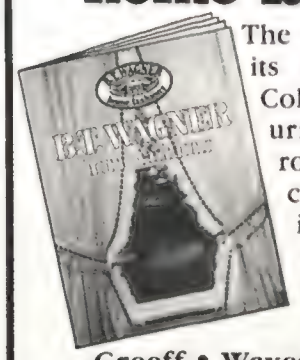

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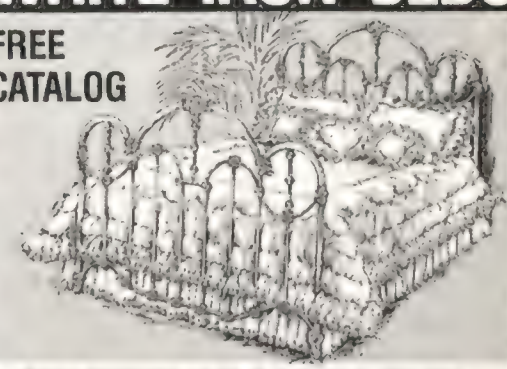

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Highlights continued

The pastels of Alice Barney

In 1889, Alice Pike Barney, who was independently wealthy, arrived in Washington, D.C., with her husband Albert. She found a city with a somnolent cultural life, which did not suit her. "What is capital life at all?" she asked. "Small talk and lots to eat, an infinite series of teas and dinners. Art? There is none."

A creative and energetic woman with a Bohemian bent, Alice set out to change that. Already a painter, she went to Paris and studied with James McNeill Whistler. Back in Washington, to escape the disapproval of her decorous husband, she had a town house built on Sheridan Circle (he died before it was completed).

Alice called the new structure, aptly, Studio House: it became both workplace and home for her. For the next several decades, Studio House was the nerve center for an unremitting variety of artistic activities. Alice produced and acted in theatrical productions and tableaux (many of which she wrote herself) and sponsored evenings of "exotic" dance, introducing such luminaries as Ruth St. Denis to Washington.

At the age of 52, Alice acted in one of her own productions as *La Rosita* (right), attracting the attention of 22-year-old Christian Dominick Hemmick, whom she later married. She once caused a traffic jam when she placed a life-size reclining nude statue from Paris on the front lawn. She was a follower of Bahaism, and when Mirza Abul Fazl came from Tehran to spread the religion in the Western world, she opened Studio House for meetings.

Yet, she always put her art first. Mornings she asked friends to Studio House for sittings and made pastel portraits of them. Her works were exhibited in Paris, New York and Boston.

Alice died in 1931; in 1960, her daughters gave Studio House to the Smithsonian. It is open to visitors, but only on certain days. For reservations call 357-8111.

The exhibit now on view in the house, *Alice Pike Barney: Pastel Portraits from Studio House*, brings the artist and her world to life, although Smithsonian staff members swear they've seen her ghost wandering around Studio House for years. If that's true, don't worry: you can be sure she's only out for a good time.
Constance Bond

Alice herself as a Spanish dancer, which she portrayed in theater piece.

Gladys Ffoulke Smith, who posed with her pet monkey, acted in Alice's plays.

Alice drew Mirza Abul Fazl, who came to Washington, D.C., to preach Bahaism.

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Civil War May 1-10: Trace the eastern campaign following the routes of Stonewall Jackson, Grant and Lee. Visit historic homes, towns and battlefields.

Chesapeake Bay Cruise May 18-25: Enjoy fresh crabs and oysters aboard the elegant yacht *Nantucket Clipper,* while learning about the bay's history. Cruise to such charming 18th-century towns as Annapolis, St. Michaels and Williamsburg.

Chicago June 12-16: Walking tours and special programs to study the city's stunning architectural legacies and cultural wealth.

Alaska June 15-25: Board the *Majestic Alaska Explorer* for a breathtaking cruise from Seattle to Ketchikan through Alaska's famed Inside Passage.

Grand Canyon July 5-15: Raft with expert boatmen through magnificent landscape. Camp beside the river, see Indian petroglyphs, learn about wildlife, history.

Vermont July 12-20: The peaceful beauty of Vermont in summer sets the stage for an in-depth look at its history, culture and crafts.

Waterton-Glacier International Peace Park July 16-27 or August 13-24: Hike through spectacular alpine scenery with naturalists. Spend nights in remote, picturesque lodges and chalets.

Oregon July 19-28: Fresh sea air, colorful wild flowers, mountain vistas and historic lodges highlight this outdoor adventure.

Journey on the Green River July 19-29: Experience the thrill of white water and the beauty of Utah's magnificent Desolation and Gray Canyons in your own Sportyak.

Natural History in the Colorado Rockies July 28-August 3: Hike the majestic Pikes Peak area to examine local flora, fauna and unique geological formations.

Crow Canyon Archaeology August 11-18: Get hands-on experience as you join archaeologists near Mesa Verde, Colorado, to participate in a dig at an ancient Indian site.

Delta Queen September 6-14: Board this historic steamboat for an unforgettable cruise on the upper Mississippi.

Washington "Anytime" Weekend: Explore the Smithsonian museums at your leisure. Package, specially priced for Associates, includes two nights at Loews L'Enfant Plaza or the Hyatt Regency, meals, exclusive tour of Smithsonian castle and National Air and Space Museum. Also breathtaking film *To Fly.* Reservations required ten days in advance.

Foreign Study Tours

People's Republic of China, 1985: Exclusive tours to a variety of destinations are led by a Sinologist and include intensive pretour briefing.

Mexico from February through March: Seven adventure tours to remote villages and ruins pursue unique aspects of history and fascinating culture.

Cruising the South Pacific February 23-March 10: At last, a Smithsonian cruise to enjoy the traditions, history and romance of Polynesia.

Indonesia March 10-31: Cruise beyond the ordinary to the islands of the Java Sea. Study natural history, observe local customs and traditional rituals.

Kyoto Seminar March 15-31: Live Japanese-style. Field trips complement lectures on art, history, religion and language.

Countryside Tours from April through September: Choice of eight two-week residential programs in England, Austria, Switzerland or France. Unpack your bags, relax, meet with local people while enjoying lectures, field trips, museums.

Canals and Old Masters April 10-24: Art museums, historic tours and spring flowers highlight four days in Amsterdam. Then sail by riverboat to explore medieval ports.

Paris and Provinces April 20-May 5: Six days in Paris with walking tours, special seminars at the Louvre, followed by a choice of travel to Provence or Burgundy.

Ecuador and the Galápagos Islands May 11-24: After visiting Quito and the Andean countryside, board the *Santa Cruz* for a study voyage to Darwin's famed islands.

Russia May 12-28: Leningrad, Moscow and Tallinn. See the Hermitage, Kremlin and other fabulous museums, palaces and landmarks. Visit schools, factories, clinics and enjoy the best of Russian theater.

Irish Walk May 14-25 or September 18-29: Tour scenic villages, hike leisurely trails through serene country settings, stay overnight at castles and charming hotels.

Danube Cruise May 23-June 9: Explore magnificent castles, cathedrals and palaces on this historic route from Bucharest to Vienna via chartered ship.

Wild Highlands of Scotland May 30-June 17: Based in a castle, visit offshore islands, lochs, moors and glens.

Seminar in Florence May 31-June 16: Study the Florentine Renaissance while living in a 15th-century villa.

Europe's Northern Waterways June 30-July 13: Aboard the *Argonaut*, cruise scenic rivers, tranquil canals and historic sea-lanes from England to Denmark.

Land of the Vikings July 21-August 4: Spend three days exploring historic Edinburgh, then embark for Copenhagen on the *Illiria* via the fjords of Norway.

Iberia and Provence August 12-26: Visit Santiago de Compostela and Carcassonne during a cruise on the elegant *Argonaut* in Portugal, Spain and France.

Write National Associates, Capital Gallery 455, Smithsonian Institution, Washington, DC 20560 or call (202) 287-3362 for tour brochures

in Washington

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Animal Communication: Classic Studies and New Discoveries
March 24-29, 1985
Michael Robinson, Director of the Smithsonian's National Zoo, and other eminent animal behaviorists offer special sessions at the Zoo and all-day field trips to its Conservation and Research Center in Front Royal, Virginia, and the National Aquarium in Baltimore.

American Masterpieces: Three Centuries of Antique Furniture
March 24-29, 1985
Oscar P. Fitzgerald, author of the acclaimed *Three Centuries of American Antique Furniture*, and William Stahl of Sotheby's explore a wide range of historic styles and provide insight on current market trends. Includes tours of the Diplomatic Reception Rooms at the State Department and Winterthur Museum.

Aircraft Restoration Workshops with Smithsonian Craftsmen
May 19-23, 1985
The master artisans of the National Air and Space Museum share their specialized techniques at its Paul E. Garber Facility.

Fine Ceramics of the Ming and Qing Dynasties
June 2-7, 1985
Experts lecture and conduct special tours at the Smithsonian's Freer Gallery and the National Gallery of Art. Seminar will cover spectacular porcelains of this period of more than five centuries.

Smithsonian Seminars in Washington are intended to provide enjoyable educational opportunities that further your involvement with the Smithsonian. All programs include classes and tours, welcoming reception, discussions with fellow Associates and a gala farewell luncheon. Hotel is optional.

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By Timothy Foote

A matter of states' rites and the cardinal virtues

It's not that I have anything against cardinals. After all, they sometimes sound as if they'd swallowed Mozart's *Magic Flute*, and in fall, when fiery red males and olive-drab females flutter around together, they can put you in mind of the Red Baron's Flying Circus tangling with a flight of Sopwith Camels.

But when it comes to civic honors and sheer public adulation, enough is enough. Take the official list of 50 American state birds, for example, and the gush of bird books extolling the cardinal virtues.

Any bird fancier at all had to be delighted when the U.S. Postal Service put out its gorgeous sheet of state birds and followed with a glossy booklet full of big bird pictures, small replicas of the stamps, an explanatory text listing state birds and when they were chosen. All well and good, until you look at the feathery lineup a bit closer. A full seven states have chosen the cardinal. Of course there are also meadowlarks (six), mockingbirds (five), bluebirds (four) and the good old American robin (three). There are some inevitable choices: Maryland's Baltimore oriole; the Rhode Island Red. Also a pelican (for Louisiana), a gull (for Utah), one television cartoon star (New Mexico's roadrunner), one historic fowl (Delaware's blue hen chicken, the namesake of a Revolutionary War regiment), plus assorted game birds, wrens and thrashers.

But alas, sports fans and fellow bird lovers, not a single warbler. And not so much as one hawk. Nor a wild turkey, even though Ben Franklin preferred the bird to the bald eagle as a national symbol: it was "respectable" and good eating rather than majestic, lazy and full of lice.

It's all enough to make warbler lovers and rapturous raptor people cry out for some sort of ombirdsman to guarantee fair play. Given the temper of the times, one can even imagine someone charging that all those cardinals constitute a threat to the separation of church and state.

The idea of having state birds at all did not catch on seriously until the late 1920s —after some heavy lobbying by Audubon societies, schoolchildren and women's clubs. In 1929 in the state of Arkansas, for example, women's clubs put forward the mockingbird. At first, according to Katherine Tippetts, author of "Selecting State Birds," the legislature "thought it a huge joke, but when they were given two stirring addresses . . . they voted unanimously" for the mockingbird. In Colorado, one faction was for the mountain bluebird; another, led by the president of the local Audubon Society, backed the lark bunting. It was sensibly noted that other states had already picked bluebirds, and, in 1931 "when the smoke of political battle rolled away," Mrs. Tippetts reports, the bunting was in by a beak. Meanwhile, down in Florida, despite competition from pelicans, hummingbirds and a large flock of schoolboys who plumped hard for the turkey buzzard, the mellifluous mocker scored again.

The good news for ornithological agitators is that these fateful, early decisions did not prove irrevocable. After choosing the chickadee in 1933, fickle North Carolina reneged on its choice, and a decade later let itself be dazzled by the cardinal. In Ohio, the jenny wren won popular acclaim in 1928. But five years later a shameless legislature gave the title of state bird to—you guessed it—the cardinal.

Showy beauty of feather and voice played a part in defections. So, perhaps, did the fact that in the past 40 or so years the cardinal has extended its range enormously. But running through the commentary is a strain of anthropomorphic praise for the cardinal's domestic virtues likely to sway the vote of children and women's clubs. "He is an ideal spouse," says "Selecting State Birds," "carrying food for the young and finally taking over their entire care." Alexander Wetmore's *Song and Garden Birds of North America* admiringly notes the male bird's "renewed tenderness" toward his mate each spring, his habit of feeding the female when she is incubating the eggs. In fact, the book says, the male cardinal's nurturing instinct is so strong that he sometimes feeds "nestlings of other species." One even took to stuffing the mouths of hungry young goldfish in a nearby pond!

Whatever the merits of such a feathered workadaddy, do we really need seven state-bird cardinals as role models? Other, tougher bird qualities may be worthy of attention. Nothing really perverse, of course. Nobody would urge the candidacy of the cowbird, whose survival strategy has led it to lay its eggs in smaller birds' nests so they'll take care of its kids.

But what about those hawks? Graceful and courageous, they are the preeminent flyers of a land in love with speed and power. It was after watching a hawk skydiving near Walden Pond that Thoreau wrote: "It was not lonely, but made all the earth lonely beneath it."

Perhaps it's time to celebrate some good old Yankee thrift, too, as exemplified by putting food by for the future. What bird best embodies this frugal approach to life? What bird ingeniously hangs the surplus of its daily prey on thornbushes to provide for leaner days ahead? Let's hear it for the northern shrike. In its pale gray business suit, with off-white shirtfront and handsome black trim, no savings bank—or economy-minded state—could have a better feathered emblem.

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